The Annual Oration

ON

THE TREND OF THOUGHT IN RECENT PHARMACOLOGICAL RESEARCH.

DELIVERED BEFORE THE MEDICAL SOCIETY OF LONDON.

BY

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PRESIDENT AND GENTLEMEN,—My first duty is to express my thanks for the high honour conferred upon me by the Medical Society of London appointing me Orator for 1913. I feel quite overwhelmed when I reflect that with hosts of metropolitans of world-wide fame, all far better fitted to fill this exalted position, you have honoured the outpost of civilization to which I belong by selecting an obscure provincial to address you to-night.

My colleagues and professional brethren across the Channel cling to the belief that though separated by this turbulent streak of melancholy ocean they are as proud of the traditions of English medicine as if a bountiful Providence had cast their lot in the heart of your mighty metropolis on the banks of the Thames instead of on the quiet shores of the Lagan. Therefore, though it may not be permitted of me to refer in these degenerate days to loyalty of a different kind, I nevertheless rejoice in assuring you that our pulses throb in unison with your own in every aspiration for the advance of British medicine.

In casting my eye over the wide domains of the science and practice of our art in search of a subject to claim your attention for a brief hour to-night the present condition of the field of therapeutics suggested itself. In no other department of medicine at the moment is such laborious research manifest or have there ever been more earnest attempts made to utilize every discovery in other branches of science for the prevention of suffering and for the relief and cure of disease. The triumphs of physics and the advances of synthetic chemistry are being daily pressed into the service of therapeutics, and each addition to our knowledge in pathology, etiology, and diagnosis is valued by the standard of how far it shall be found useful in leading up to a more successful treatment of human maladies. The result of this ceaseless activity has been an advance in the art of healing during the last three or four decades, which is perhaps as great as the progress registered in any corresponding number of centuries.

Whilst the militant army of chemists, bacteriologists, and pathologists was successfully wresting from Nature her treasured secrets when the majority of my present auditors were entering upon their professional studies, the therapeutic battalion seemed to be merely marking time. These were the days when the pessimist and the sceptic, strengthened by the startling revelations of microscopic changes in diseased tissues, and emboldened by the failures of empirics or the visionary seekers after specifics, scoffed loudest at the bare possibility of such results as have been since achieved. This condition of affairs was not without its depressing and retarding effect upon therapeutic progress, so that even the facts accumulated throughout many years of patient clinical observation on the old and well-tried remedies were frequently denied or altogether ignored, because a scientific explanation of their action was not immediately forthcoming.

In the present age of pharmacological activity and discovery, when the air is still ringing with the marvellous results achieved by such agents as thyroid extract, diphtheritic antitoxin, and salvarsan, we have to guard ourselves against the allurements of the opposite evil of credulity. We can, however, always rejoice in the existence amongst us of the honest doubter—one of the best assets of British medicine—for only through honest doubt can we hope to reach the final goal of sure belief—the essential factor in successful therapy.

The present seems to me, therefore, a suitable opportunity for pausing and investigating the truth of the more important theories which, like beacon lights, have been guiding pharmacologists in their successful search after new remedial agents. Obviously, the brilliant triumphs achieved by operative surgery and Listerism cannot come under our immediate consideration, owing to the shortness of the time at my disposal; neither, indeed, is it necessary to speak of them, since they have been ably dealt with by more than one of your recent annual orators.

On the threshold of such an inquiry we are reminded that very often the advances made in one era are to be traced backwards to their origin in a rational or accidental discovery made at a much earlier date, and sometimes to a research the importance of which was overlooked at the time. Should such a retrospect in the domain of therapeutics prove successful in elucidating a scientific starting point to which our present advances can be reasonably attributed, the subject becomes of more than a mere historical or academical interest, since we can confidently hope for further progress so long as research is conducted upon the lines originally laid down, or lines directly or indirectly communicating with the main track.

Such a starting point, I believe, may be found in the epoch-making researches on the action of methyl-strychnine, conducted by Crum Brown and Fraser in 1868. It was well known that ammonia and its derivatives, when administered to animals, caused stimulation of the spinal cord and medulla, which ended in convulsions; it was also recognized that the chemical constitution of the vegetable alkaloids corresponded to the type of an ammonia derivative. These experimentalists made the discovery that by linking the organic alkyl radical, methyl (CH_3), to the nitrogen of the complex molecule of strychnine, the resulting comparatively slight change in chemical structure altered in a remarkable manner the physiological or pharmacological action of the alkaloid. The alteration was manifested by a change from the convulsant effect on the cells of the cord to a paralytic one on the terminals of the motor nerves, such as is witnessed in the well-known symptoms of poisoning by curare. This change of physiological action being manifestly due to the transformation of the original tertiary base into a quaternary ammonium compound, it was not to be wondered at that almost identical results were obtained by altering in the same way the chemical constitution or structure of a number of the other alkaloids exercising widely different actions on the human body.

Similar change in physiological action is also obtainable by linking other alkyl radicals, as C_2H_5 instead of CH_3, the radicals being, in each case, previously combined with iodine or bromine. That this change in action is not a mere coincidence or accident, is demonstrable in a remarkable manner by the methylation of curare itself—the drug which, in its natural state, affords the most typical example of a paralytic effect upon the motor nerve endings. This substance contains two ammonia bases—the active curarine and the comparatively inert curine. Now, if the latter base be altered by the before-mentioned manipulation with methyl, the transformation in its chemical constitution causes it to become about 230 times more poisonous than before, and the resulting new compound is found to be identical with curarine, the active principle of the drug.

Sir Lauder Brunton, to whom British therapy owes so much, speaking in 1886 of Crum Brown and Fraser's discovery as directing pharmacological advance along a new path, prophesied that another twenty years would not only add greatly to our stock of remedial agents, but to a better knowledge of our patient's condition, ushering in the era when we should be able to ensure the drug action we desired without feeling that our patients often died for lack of knowledge, not on our part but on that of our art. We all feel painfully that such a millennium is still far off, but, nevertheless, we are steadily, if slowly, approaching it. If we interpret Brunton's forecast concerning "our better knowledge of the patient's condition" as implying a clearer conception of the incessant changes taking place in the protoplasm of the body cells, it must be conceded that enormous strides have been made in our progress in this direction, since, during the last quarter

of a century, a chemical basis has been industriously constructed, upon which the science of pathology now securely rests—a fact not sufficiently recognized, even by pharmacologists.

Therefore in a re-survey of our therapeutic position any examination of the value of the theory concerning the relationship between pharmacological action and chemical constitution must proceed hand in hand with a consideration of the advances made in chemical pathology and physiological chemistry. The truth of the axiom that pathology must constitute the basis of every rational system of therapeutics is more obvious to-day than it was fifty years ago, at which time the study of diseased processes was mainly conducted on morphological lines. If the science of pharmacology is to rest upon the arch of pathology, whose keystone is physiological chemistry, it obviously follows that this foundation must be sufficiently strong and wide to support the growing fabric of all scientific therapy.

The subject of the relationship between physiological action and chemical structure is a most complex and tedious one for treatment in a solitary address, especially as the high pressure and whirl of professional activities permit few practitioners to cultivate the habit of thinking in chemical language. The nature of our work almost compels us to think out our clinical problems from the physical or vitalistic point of view, hence in my attempt to review the accumulating evidence in favour of accepting the doctrine of a close connexion between the action of a drug and its chemical structure I shall try to avoid as far as possible references to complicated graphic formulae and the highly technical phraseology of the student of organic chemistry.

It was expected by pharmacologists that Brown and Fraser's discovery would immediately revolutionize the science of therapeutics, but in this they had to realize soon a keen disappointment. The application of a few swiftly constructed generalizations to the solution of intricate therapeutic problems at first only led to failure and chaos, and, as always happens, a revolt against the new doctrine soon appeared. Even at the present hour some pharmacologists may be seen labouring under the old incubus of trying to explain the action of drugs on the theory of some purely physical or mechanical property in their atoms or molecules, whilst others are falling back hopelessly upon the ancient vitalistic conception. Hence arises the importance of a scrutiny of our present position, since the problem is not one to be decided only in the laboratory, but to be finally tested by the practitioner at the bedside.

It is hardly necessary to remind my auditors that in the examination of the theory of the relationship between pharmacological action and chemical constitution we must put aside the question of the mere chemical composition of a drug. It is not the number or nature of the atoms in a compound which we have to think of, but the plan of structure by which these are built up and linked to each other in the drug. In other words, it is not a consideration of the number or nature of the individual bricks or building stones employed, but the manner in which these are grouped together in the molecules of the compound radicals determining the final chemical construction or constitution of the compound. This vital distinction between the structure and composition of a chemical compound is seen in the empiric formula $C_6H_{12}O_4$, which is the label attached to no fewer than sixty-six compounds —all totally different substances. It is true that a simple change in the mere composition of a salt may change or vary greatly its action, but this will generally be found to be due to some alteration in its solubility which causes retardation of its absorption or acceleration of its elimination. Thus the victim of the malarial parasite can be often speedily rescued from his perilous toxaemia by a moderate dose of the hydrochloride of quinine when he would perish with an enormously larger amount of the insoluble alkaloid or its sulphate lying unabsorbed in his gastric cavity.

After the demonstration of the results of methylating the strychnine molecule came the valuable generalization of Brunton and Cash on the actions of the carbon compounds. These observers pointed out that the two great fundamental groups met with in organic chemistry differed very materially in their pharmacological actions. The substances built up on the open-chain plan, the type of which is marsh gas (CH_4) and chloroform ($CHCl_3$), all paralyse the nerve centres and tend to exert an anaesthetic action, whilst the close chain or ring series, represented by the benzene nucleus, produce convulsions or spasms before paralysing. Liebreich, seizing the truth of this common paralytic action of the open chain or fatty series of the carbon compounds, started out in search of a new hypnotic, which ended in the discovery of chloral, as Schmiedeberg likewise gave to therapy the invaluable hypnotic—paraldehyde.

When one of the hydrogen atoms in the closed benzene ring is replaced by the radical hydroxyl (HO) phenol is formed, and as each of the other hydrogen atoms is substituted by a further hydroxyl addition, or by methyl, the antiseptic power of the resulting aromatic compound proportionally increases. It was found that by varying the position of hydroxyl in the ring valuable antipyretic qualities could be developed; thus was achieved a notable triumph in therapeutics by advancing from hydroquinone to the synthetical building up of kairin, thallin, and finally of antipyrine.

Since then innumerable examples have accumulated equally suggestive of this close relationship, a mere recital of which would occupy the entire time at our disposal, and by their multiplicity would obscure the issues under consideration. It is noteworthy that these examples tell in opposite directions. Not only is the synthetical chemist able, by altering the structure of the molecule, to intensify greatly the action of the compound; but he can, with equal ease, render the poisonous drug inert by introducing into the molecule such acidic groups as the sulphuric, sulphonic, and carboxylic. Thus the poisonous phenol is converted into the inert phenyl-sulphuric acid, and morphine-sulphuric acid can be swallowed with impunity in drachm doses. Notwithstanding, however, these accumulating instances of close relationship, it must be conceded that it is still impossible for the pharmacologist to foreshadow with absolute certainty the physiological or therapeutical action of a particular untried drug, so that rational must proceed in company with a certain degree of empirical therapy. But the shrewd guesses of a couple of decades ago are now being replaced by the stronger probabilities of later years, and by the almost certainties of 1913. It is often argued by the sceptic, with an apparent show of reason, that this relationship between chemical structure and pharmacological effect, if it be a definite law, should always afford the certainty of a mathematically correct prophecy. That it does not is due to the fact of our want of knowledge about the construction of the molecules of the highly complex carbon compounds, whose number almost suggests infinity, and of which but a very few comparatively have been studied structurally. Each discovery of the true nature of the graphic formula of these shows that Nature is gradually, if reluctantly, yielding up her secrets to the indefatigable analytical and synthetical chemist, who at once seizes upon the advance as a new stepping stone from which to approach the creation of an entirely new compound with the almost certainty of obtaining a specific action upon some particular type of body cell or tissue. It is true that unforeseen secondary actions of the newly created drug may vitiate the desired result and prove a barrier to its safe use as a therapeutic agent, but often a further study of its complex molecule suggests a new substitution process by which untoward effects can be eliminated after handing back the compound from the pharmacologist to the synthetical chemist. Another real difficulty in the acceptance of the relationship as a definite law is the operation of the incessant changes, chemical and physical, which are occurring in the blood and body cells, but this difficulty, as already mentioned, is steadily being lessened by the new flood of light thrown on metabolic processes by the physiological chemist.

The few pharmacologists who attempt to belittle the importance or deny the truth of the intimate relationship between drug action and chemical structure because of their adherence to a purely physical or mechanical theory of the *modus operandi* of remedial compounds, appear to have overlooked the obvious possibility of the physical character of the molecules being entirely due to the chemical structure of their constituent groups. Thus, it cannot be too clearly realized that should some startling

discovery prove the correctness of the old physical theory (though such an event is almost inconceivable), the importance of the relationship as a factor in therapeutic advance would in no way be lessened, especially as it is abundantly recognised that the operation of purely physical laws plays an important part in at least either retarding or facilitating the entrance of the drug to the cells of the tissue upon which it acts.

Let us now, for a moment, suppose that sufficient instances are not yet forthcoming to justify us in regarding the connexion between chemical constitution and physiological action as a definite "law," but only as a working hypothesis, and let us glance at the results which have accrued to practical therapeutics from its application. No stronger proof could be produced for the demonstration of a truth in medicine or in any other science than the long list of new synthetic antiseptics, antipyretics, analgesics, local anaesthetics, and hypnotics, the discovery or creation of which has owed its origin not to empiricism, but to the inspiration of a rational therapy founded on the theory of this relationship. Truly men do not gather grapes of thorns or figs of thistles. If we even set aside the entire series of new remedial agents just mentioned, salvarsan would alone demonstrate the truth of the contention. Ehrlich in the introduction to *The Experimental Chemiotherapy of the Spirilloses* states that from the beginning of his medical studies he became possessed with the conviction that "if a connexion between the constitution and the physiological action were granted, this must be pushed further and the tissues must also participate in the distribution, and whereas formerly the substances were offered to the medical man by the chemist for testing purposes, the conditions could now be reversed and the chemiotherapeutist could give the chemist points which lead to the desired recovery of genuine curative substances."

To my mind the question of whether or not Ehrlich has discovered a genuine cure for syphilis sinks into insignificance when contrasted with the importance of the fact that his methods are based upon such a rock-bed of truth as must ultimately revolutionize the treatment of all parasitic diseases by chemical agents. That no single step in his laborious search for a remedy against the spirochaete was taken empirically or at haphazard is evident from his repeated assertion that from start to finish every advance was made in a most purposive manner and only after an exhaustive study of the molecular construction of each of his 606 tested compounds. How far Ehrlich pushed his conviction beyond the theory of mere relationship brings me to the consideration of the second great fundamental principle underlying the conception of a purely chemical basis for all therapy.

His term "chemiotherapy" implies a great deal more than the acceptance of an established dependence of action on chemical constitution. With this new word another working hypothesis leaps into view, and it is essentially different from the one which we have been considering. The mixing up of these two theories has already threatened a check to therapeutic advance. Stated in its most advanced form, this second theory attempts to explain the action of a drug as the result of a chemical combination of some of its groups with other constituent groups or radicals in the complex molecule of the living protoplasm of the cell or tissue upon which it acts. It must be at once conceded that such chemical reaction can only be proven in a few cases, and therefore cannot be said to rest, as a theory, on the solid basis which must be acknowledged as existing in the case of the established relationship between structure and drug action. Hence it is not surprising to find that some pharmacologists who regard the relationship theory as not incompatible with the older hypotheses of vital, physical, and catalytic actions, nevertheless deny the truth or probability of the newer doctrine.

It will repay us to put this working hypothesis of chemical reaction to the same severe test as we have applied to the outcome of Brown and Fraser's discovery in order to examine and determine what part it has played or is playing in therapeutic progress, so that we may judge of its truth by the fruit which it has brought forth. And here let me remind you that the molecular theory upon which the science of chemistry is based is still but a working hypothesis, and probably must remain as such for all time. It has long been known that many drugs suffer a fundamental change between the periods of their absorption and final elimination from the body. The direction of this change, as put by May, is usually in the direction of a transformation of an active or poisonous substance into a less harmful compound, and though it cannot be accepted as proof that the effect of the original drug is due to a chemical reaction between its molecules and those of the living protoplasm on which it acts, it may nevertheless be incidentally mentioned that this knowledge has been put to practical account by suggesting to the synthetic chemist the planning of a new compound on the same type as the transformed eliminated product. In this way, from a study of the behaviour of aniline in the body, phenacetin and other valuable para-amino-phenol derivatives have been added to the therapeutic armamentarium.

The great difficulty of demonstrating the doctrine of a purely chemical basis for pharmacological action rests in our incomplete knowledge of the chemical construction of the living cell protoplasm and of the physico-chemical processes incessantly occurring therein. The puzzling and highly complex constitution of the proteid molecule is gradually being cleared up, and already about a score of its cleft off building stones have been examined and proved to be of definite chemical composition and constitution, containing strong basic and acid groups capable of combining with each other to form an infinite number of compounds. Though we are still a long way from a synthetical construction of a protein molecule, the building up of the polypeptides by Emil Fischer strongly encourages the hope that this giant achievement is a possibility in the not far distant future. How vast is the field for such research, and how numerous are the amino-acid groups all capable of combining with each other through their basic and acid radicals may be dimly appreciated by the estimation of the molecular weight of haemoglobin as 16,669.

On reflection it becomes obvious that the complexity of the construction of the molecule of the cell protoplasm and the almost infinity of its changing groups are in themselves arguments rather in favour of than against the theory of a true chemical reaction between the compound administered and some of the radical groups existing in the cytoplasm.

These considerations clear the way for a brief glance at Ehrlich's great side-chain hypothesis or working theory advanced in order to explain the phenomena of the action of the antitoxins of diphtheria and tetanus. It is based entirely upon the chemical conception, and at first view the remarkable fact is obvious that this purely chemical hypothesis was built up to explain the action of the most complex organic compounds known to science in order to elucidate the phenomena of immunization. It recognizes the fact that the toxin molecule contains a large number of complex organic groups or radicals bound together to a central chain or nucleus.

Some of these radical groupings possess a chemical affinity for other complex groups existing in the protoplasm of the cells susceptible to the poison. These chemical affinities constitute in the language of Ehrlich the side chains known as the anchoring group or haptophore, which combines with a receptor radical in the cell protoplasm, and thus fixes or anchors the toxin molecule to the protoplasmic molecule. The harmful radical in the toxin, being thus fastened in close relationship with a chemical group in the cell, combines with it through its toxophore radical, the chemical reaction accomplishing the injury or death of the cell.

According to this working hypothesis no result will follow the injection of a toxin unless the cells of the organism contain in their molecule a group or radical, known as the receptor, which possesses an affinity for the haptophore or anchoring radical in the toxin as well as a group capable of being injured by the toxophore side chain of the poison. The phenomenon of natural insusceptibility is thus easily explained, since the immune animal contains in its cellular protoplasm no receptors for the fixation of the toxin molecule. Of much more practical importance to the therapeutist is the working out of this hypothesis when applied to the elucidation of acquired insusceptibility or immunization, and of still greater importance is it in solving the problem of the action of

antitoxins in the cure of disease. When doses of the toxin short of producing a fatal result are injected the chemical reactions just described are assumed to have occurred, but the smaller amounts, instead of destroying the cell, only serve to excite it to regenerate its receptors. The cell is also further stimulated to produce more of the chemical receptor substance than is required merely to replace that which has already combined with the toxin, the excess being showered into the blood constituting the antibodies found in the serum. These, therefore, are to be considered as free cell receptors with unsaturated chemical affinities which immediately combine with the haptophore radicals of the toxin, thus effectually preventing them from anchoring to the cell protoplasm, without which fixation a toxic effect cannot be produced.

At the risk of wearying my auditors I have ventured to give this brief description of the side-chain hypothesis, which is often put in such technical language as to obscure its purely chemical application; we shall now glance rapidly at the practical results of serum therapy. This has been during the last few years confused often with vaccine therapy to the retardation of therapeutic advance. I have used the term "toxin" only in its now scientifically restricted sense as the poisonous product of a true secretion of a bacillus. It is necessary to keep in mind that probably only four pathogenic bacilli really secrete a chemical poison. These are the microbes of diphtheria and tetanus, botulismus and pyocyaneus bacilli. The toxins obtainable from castor and croton seeds do not come within our present scope, and the product of Shiga's bacillus is still of doubtful nature. All the other vegetable parasites contain their poisons as an intracellular chemical or endotoxin, which can only operate deleteriously on the tissues after the death and dissolution of the microbe. This fact constitutes the fundamental difference between serum and vaccine therapy. Only toxins lead to the formation of true antibodies in the serum.

Sir Almroth Wright, who never loses an opportunity for demolishing the untenable pretensions of those who apply serum therapy to the treatment of bacterial diseases other than those of diphtheria and tetanus, speaks of the action of the serums for these latter affections as a miracle of successful immunization—a miracle which gives in a few cubic centimetres a sufficient antitoxin to change the entire course of the patient's disease. When we remember that Behring was able to immunize an animal to such a degree that one thousandth part of a single drop of its serum was sufficient to neutralize a lethal dose of the chemical toxin, we become able to realize that there is nothing in the whole realm of therapy which rests upon a more secure foundation than the serum treatment of diphtheria and tetanus. The comparative failure of the antitoxin of the latter disease only strengthens the structure upon which the therapy is erected, since by the time the first symptoms of trismus have appeared a chemical combination between the groups of the toxin and the molecule of the cell protoplasm has already taken place. We are even justified in asserting that if we could know the exact moment at which the bacilli of these diseases enter the body, by an immediate resort to the serum a fatal issue would always be averted.

It is necessary to realize the truth of this in order to judge rightly of the value of Ehrlich's hypothesis, which explains, on a purely chemical basis, almost every problem met with in the marvellous processes of active and passive immunization, notwithstanding the theoretical qualifying views of Arrhenius and Madsen regarding dissociation, or the adsorption theory of Bordet and Biltz and the recent experiments of Abderhalden with the polariscope. But even if we assume that the side-chain hypothesis does not assist us in establishing proof that the action of the antitoxic serum is of the nature of a true chemical reaction, the following facts must be accepted as conclusive evidence that the result is due to the operation of laws which govern all other chemical reactions:

1. The neutralization or saturation of the toxin by the antitoxin occurs in the test tube as well as in the animal body.

2. It is more rapidly effected by mixing together strong solutions than weak ones.

3. It occurs more quickly under warmth and is proportionally retarded by cold.

4. A very marked elevation of temperature always accompanies the reaction *in vitro*, the degree of heat having been accurately measured by Arrhenius and Madsen, who found it to correspond to about half the elevation which follows the neutralization of a strong acid by an active alkali.

5. It has been proved experimentally that the toxin and antitoxin do not perish, or are not destroyed by the chemical combination; though the former is deprived of its injurious property for the time, it can afterwards be recovered from the solution.

6. The neutralization of the toxin has been demonstrated to proceed in obedience to the law of constant proportion; that is to say, a given amount of the chemical poison, or multiples of this amount, are always saturated by corresponding multiples of antitoxin—a fact which alone would establish the purely chemical basis of the reaction.

7. If the tetanus toxin be mixed with an emulsion of the brain of a healthy guinea-pig it becomes innocuous, chemical combination being thus brought about between it and the nerve protoplasm, probably in the exact manner in which this takes place in the living animal after injection of the poison.

These indisputable facts, if they cannot be accepted as proof that all other drug action is the result of a chemical combination between the drug and a compound radical with unsaturated affinities in the protoplasmic molecule of the selective cells, nevertheless must be accepted as going a long way in this direction. That proof is so conclusive in this instance of serum-therapy where the chemical structure is so very highly complex is not without significance. (I may incidentally mention that if the result of the action of strychnine be due to a chemical combination between the alkaloid and the cell protoplasm in the spinal cord, this hypothesis should be proven if previous trituration with nerve matter rendered the poison innocuous, as in the tetanus experiment. I regret to state that a long series of experiments, inaugurated by me some years ago, failed to establish this result, the failure being probably due to the alkaloid being prevented in gaining an access to the cellular protoplasm, owing to the cessation of some preliminary physical or chemical process in abeyance in the dead protoplasm.)

The purpose, however, with which I have set out in these remarks is not so much to heap up examples in support of a purely chemical theory of the action of drugs as to point to the influence of the hypothesis on the most recent trend of therapeutic progress. If we find that by following this conception as a working hypothesis pharmacologists have been able to achieve a notable triumph over disease, we may then safely accept its truth after the manner in which the chemical explorer accepts the molecular theory.

In this consideration a study of the evolutionary steps in the side-chain hypothesis affords a considerable degree of interest. It started in Ehrlich's mind on observing the effects of various staining agents on different parts of the animal cell. After studying the chemical structure of the dye molecule he was led by the laws of reasoning to apply his inferences to the explanation of the phenomena of immunization, and it is a most noteworthy fact that he at first denied the possibility of any similarity between the action of a chemical substance of known composition and of an antitoxin. He was, however, inexorably led by his research work to the conviction that the protoplasmic molecule possessed chemio-receptors which united with the haptophore or anchoring groups in the drug.

Dixon argues with a brilliant *naïveté* that since these hypothetical receptors are obviously distinct from food receptors it is difficult to regard them teleologically as pegs specially designed for the physician on which to hang his drugs. From a consideration of the results achieved it must be conceded that they are pegs strong enough to support the heavy superstructure of chemotherapy, the coping stone of which at present is neosalvarsan.

Led first by the truth of the generalization arising from the research of Crum Brown and Fraser, Ehrlich proceeded on his path of exploration by applying at each step his side-chain hypothesis to the elucidation of the complex reactions occurring in the human body after the

injection of various dye stuffs and a host of arsenical compounds, with the result that he was enabled to discover an agent possessing the maximum parasite-destroying power with the minimum of organotropic action. But this was not all; the blending of the solution of two problems which confronted him is to be seen when we examine his final achievement. He had not only to solve the problem of killing the parasite without injuring the patient, but he had to cure the disease, which was liable to be aggravated seriously by the rapid disintegration of the slain spirochaetes. In his method we find chemio- and sero-therapy working side by side, the one aiding the other. A dose of salvarsan injected into the veins of a syphilitic mother effects the dissolution of the parasites, whose liberated toxin at once leads to the formation of antibodies in the parental blood, these on being conveyed to the infant in the mammary secretion destroy its myriad spirochaetes or render their propagation impossible, as in the diphtheritic disease, even when no trace of the salvarsan molecule can be detected in the mother's milk.

In establishing chemiotherapy, Ehrlich's aim was to effect a complete sterilization of the body by a single full dose of the antiparasitic drug without injuring the tissues, a result which he designates the *therapia sterilisans magna*. It is a very remarkable fact that in both this result and in the chemical combination theory which led to its achievement, he was forestalled by Binz of Bonn in a most important research made in 1867, the year previous to Brown and Fraser's discovery.

Binz, when experimenting on the action of various drugs on the infusorial organisms met with in ordinary hay infusions, discovered that active paramoecia were readily destroyed by a 1 in 10,000 solution of quinine, though they withstood the action of enormously stronger solutions of strychnine and other poisons of vegetable origin.

Three momentous conclusions were drawn from this simple experiment: First, that the cause of malaria, which was then unknown or dimly guessed at as a nervous manifestation, would probably be found to be of protozoan nature, since malarial disease was so readily cured by quinine. Secondly, that by administering 15 grains of the hydrochloride to an average man a solution of twice the strength in the blood necessary to kill amoebae was formed, thus fulfilling the ideal of *therapia sterilisans magna* of Ehrlich. Thirdly, at a later period the working hypothesis of true chemiotherapy was applied, by which it was inferred that the quinine entered into chemical combination with the protoplasmic molecule of the parasite, whereby it was robbed of its power of absorbing oxygen, and died of asphyxia.

Though Binz's work was mainly empirical and not conducted upon the purposive lines of Ehrlich's researches, nevertheless it affords us evidence that he was but dealing with another glimpse of the seamless garment of an eternal truth which will be found ultimately to clothe all drug action as well as every mysterious metabolic process in the living body.

From a consideration of the chemical basis of serum-therapy one is naturally led to test the value of this working hypothesis as affording an explanation of the advances made in vaccine-therapy by Wright. We shall pass lightly over these brilliant achievements, not because they are of less importance, but because the progress made in this direction does not very obviously appear from Wright's published writings to have been started entirely by the impulse of a chemical theory, as was the case in the more apparently purposive scheme of Ehrlich's researches.

The recent Witwatersrand Report of Sir Almroth on "The Treatment of Pneumonia" gives no uncertain note about his views on this subject and forces us to believe that vaccine treatment owes its origin to the conception of a true chemical combination occurring between the remedial vaccine and the bacterial protoplasm. Thus, he states that there is within the human body a laboratory which can, within certain limits, furnish bacteriotropic substances which will enter into destructive chemical combination with any and every variety of bacterial protoplasm without poisoning the tissues or becoming inert in the blood. All immuno-therapy and, in particular, all vaccine-therapy has been built up, he says, "upon these facts and upon the fact that the chemical machinery which elaborates bacteriotropic substances is set in motion whenever a chemical attack is made upon the tissues by dissolved bacterial protoplasm." He objects to the term "chemiotherapy" being restricted in its application to specific treatment by drugs, since, in all cases, both in serum and vaccine treatment as well as in specific drug therapy, the attack upon the microbes is a *chemical* attack.

A host of workers has already been busy with the test tube and the chemical balance in this department of investigation, guided by the side-chain theory, so that the mysteries of vaccine action and its allied phenomena are being steadily cleared up. But the light let in upon the working of the process flows from the genius of Wright through the discovery of his own peculiar methods of demonstrating the possibility of measuring dosage and results by the opsonic index and other modifications of the phagocytic machinery.

The chemical reactions are much more complicated, and hence more difficult of demonstration than in the case of the simpler neutralization of a toxin by its antitoxin, because, as already stated, no true antibodies are produced during vaccine treatment. Nevertheless, the serum of an immunized animal will kill the corresponding bacteria when these are added to it *in vitro* though in a distinctly different manner from that by which the diphtheritic and tetanus antitoxin act.

Two substances are required for this destruction of the microbe; one of these, the so-called *immune body*, is produced during the injection treatment, the other, known as the *complement*, exists already in the normal serum, and is not elaborated in increased amount by the injections. The side-chain doctrine hypothecates the immune body as possessing two receptors, one of which binds it to the bacterial endotoxin, whilst its second affinity satisfies itself by combining with the complement. The possession of this double affinity of the bacteriolysin is recognized in its name of amboceptor. It must be regarded as an intermediary body which (in the chemical language of Wells), on being added to the bacteria during the process of immunization, gives to them a chemical affinity for the complement existing already in the blood serum. It is therefore the complement and not the immune body which effects the destruction of the bacteria.

The sceptic may say that this explanation is pure fancy and that chemical laws have nothing to do with the result, but Hektoen has been able to isolate the complement and to prove that it is a definite chemical compound. He has rendered it inactive by causing it to combine with the ions of calcium, magnesia, and sulphuric acid, and Manwaring has succeeded in divorcing it from these ions by a simple chemical reaction. Other investigators have shown that it is a body which, though closely resembling an enzyme and very susceptible to heat, nevertheless combines with the amboceptor, in obedience to the law of definite or multiple proportions which prevails in every true chemical reaction.

The most inscrutable problem arising in serum therapy is the phenomenon of hypersensitiveness which appears on the reinjection of a serum, and causes death when all is apparently going well with the patient. Wolf-Eisner pointed out that the fatal result was due to the operation of a general biological law governing the action of a heterogeneous albumen, namely, that it causes the formation of reactive substances. It is a most noteworthy fact that, quite recently, this hitherto insoluble crux has been brought under the grasp of the chemical working hypothesis in a most unexpected way by Friedberger, who, by mixing quantitative proportions of antigens, antibodies, and complement obtained from healthy serum, was able to liberate the chemical compound which produces the tragic phenomenon of hypersensitiveness.

From these important discoveries which have established a true working theory for serum therapy, vaccination treatment, and hypersensitiveness, we derive faith that the long cherished hope of dealing effectually with all bacterial diseases will be soon realized, especially as it has been abundantly proven that the protoplasmic molecules of nearly all the pathogenic organisms possess receptors capable of combining chemically with various staining reagents.

Till quite recently it must be confessed that all the more

important advances in therapy left the greater problem of the treatment of the diseases caused by endotoxin microbes untouched. Neither did the triumph of salvarsan aid us directly, save by lifting therapeutics out of the old rut of empiricism by demonstrating what could be achieved by the application of rational methods based upon a sound chemical theory.

The fringe of the dark cloud which like a pall had overshadowed the therapeutics of the commoner bacterial affections has recently been lifted by the experimental researches of Morgenroth and his co-workers. Writing of these results, Wright states that "they are destined to stand out as a landmark in the history of pharmacotherapy, because they furnish the first demonstration of the possibility of preventing and curing a bacterial—as distinguished from a protozoal or spirochaetal—infection by the administration of a drug." The experiments were made by injecting mice with the pneumococcus, which always proved fatal when untreated. By injecting ethylhydrocupreinhydrochlorate before the inoculation 90 per cent. of the rodents were saved, and in 50 per cent. death was prevented when the salt was injected after infection. These results place the action of Morgenroth's agent in a totally different category from that of any known chemical antiseptic. When tested in the treatment of pneumococcal infections in man, though the new drug was found disappointing and was proved to produce optic disturbances, it affords us every reasonable hope that by proceeding on Ehrlich's rational lines a substitution product will be discovered capable of giving equal or better results than the startling effects on mice suffering from the same microbic infection.

A grave obstacle to the acceptance of a purely chemical hypothesis of drug action has hitherto existed in what we may term the bogey of catalysis and cell enzymes. Even this, however, has now been removed by the scientific explorer. The most recent researches into the nature of the highly complex chemical structure of the enzymes afford no clue to the plan of their constitution, which remains still a profound secret. All we know about them is derived from a study of their effects. They are to be found in every living cell, and the old view which maintained that all the metabolic phenomena of life were due to the vital activity of the cell is now shifted to the action of enzymes. These, even when intracellular, have in many instances been separated from the living protoplasm though in a state of only comparative purity.

Every known enzyme is undoubtedly in the first instance the product of a living cell, but the same may be said of quinine and strychnine, and the part played by the parent enzyme cell may be conceived by the demonstration of Kobert, who procured chemically active trypsin from the body of a spider preserved for a century and a half in the Nuremberg Museum, as Sehrt discovered active glycolytic ferment in the muscles of a mummy. The researches of Croft Hill and Oswald have proved that the action of enzymes is simply a chemical one, thus the mystery of their behaviour, which a few years ago was regarded as the bulwark of the vitalist argument, has now been demonstrated to be nothing but a series of chemical reactions which are occurring in every cell in the body. The enzyme merely increases the speed of the reaction, which, like other chemical reactions, is reversible, the change occurring from either side of the equation till equilibrium becomes established. In this way, as clearly pointed out by Wells, enzymes not only hasten the splitting up of organic compounds, but they quicken synthesis, though both processes would go on without their presence, only at a much slower rate of progress. He sums up the results of our recent knowledge in the following words: "All metabolism may be considered as a continuous attempt at establishment of equilibrium by enzymes perpetuated by prevention of attainment of actual equilibrium through destruction of some of the participating substances by oxidation, or other chemical process, or by the removal from the cell, or entrance into it, of materials which overbalance one side of the equation."

If we could clearly prove that the action of enzymes is to be explained on a purely chemical basis, as has been done in the case of the toxin and antitoxin, it must be conceded that the way to a clearer chemical conception of drug action is opened up. I believe that this has been done, for the following reasons:

Though enzymes do not act quantitatively, they are, nevertheless, practically identical, pharmacologically, with true toxins—that is, with those chemical compounds which are the free secretion of bacilli. If a full dose of a sterile enzyme be introduced into the circulation, a profound toxaemia, terminating in death, occurs. When a smaller amount is injected and repeated in increasing quantities, immunization results from the formation of antibodies, which impart an anti-enzymatic property to the blood serum. This serum, when removed from the vessels of the immunized animal, is found to possess the power of neutralizing fatal doses of the enzyme injected into another animal, and appears to behave, in every particular, in the same manner as the antitoxin of diphtheria does with its toxin. Moreover, the anti-enzymatic action of the serum is rigidly specific, combining only with its own enzyme, as pointed out by Fisher.

It appears, therefore, impossible to escape the conclusion that the ferment contains a haptophore and toxophore group, which combine chemically with receptors in the molecule of the antiferment. This would probably apply also to the action of specific hormones, to which Dixon tentatively attributes the physiological activity of the tissues.

The importance of the acceptance of a chemical theory for the explanation of the action of enzymes affects the science of therapy much less than it does that of physiology and pathology. We realize this when we think of the modern biologist's view that the living cell must be regarded as a co-ordinated system of ferments, upon whose activities all the phenomena of life depend. Not only are they incessantly breaking down, but they are as continually building up or synthesizing new compounds and forming antibodies whose presence prevents the autodigestion of the different organs and tissues in the body.

To this broad conception of biological chemistry we might apply a modification of the old Greek's jest—The world is supported by Atlas, Atlas is supported by a tortoise, whilst *Chelonia graeca* itself is resting upon fair weather. E. J. Lewis has playfully suggested that the riddle of the world might be better figured by substituting the word "enzymes" for "fair weather," and I would venture to transform the burlesque into a scientific truth by suggesting that the enzymes are now resting finally upon the solid foundations of chemistry, whose laws govern—

"Air and ye elements, the eldest birth of Nature's womb, that in quaternion run, perpetual circle multiform; and mix and nourish all things."

Any survey of the potent factors in recent therapeutic advance would be very imperfect without a recognition of those purely physical forces whose fascinating influence is obviously manifesting itself on the mind of every explorer in each of the domains of natural science. I refer to those physical laws whose operations are seen in alterations of surface tension, osmosis, diffusion, dissociation, etc.

Our recently acquired knowledge of these forces sometimes proves a veritable *embarras de richesse* to the pharmacologist. Thus one of the latest arguments used for the support of the old physical view of drug action is derived from the study of the *modus operandi* of the hypnotics and narcotics by applying the theory of Hans Meyer and Overton. This postulates that the selective action of a narcotic depends upon its solubility in the brain lipoids, the more powerful members of the group being those least soluble in water and most soluble in fat. Traube's theory also runs on purely physical lines, since he attempts to explain the hypnotic action by assuming a difference of the surface tension, which alters the velocity and direction of the osmosis.

The applications of such theories may, with all respect to their supporters, be regarded as an illustration of the invisibility of the wood because of the presence of its trees. To the searcher after the truth of things such theories merely explain the entrance of the drug molecule to the cerebral cell protoplasm without affording us any help whatever regarding the way in which the narcotic effect is produced. To obtain this we must fall back on the chemical theory of Baglioni, which assumes that the temporary paralysis of the cerebral cell is due to the withdrawal of its life-giving oxygen, since the benzene-phenol compounds, in obedience to the law of relationship

between physiological activity and chemical constitution, exert their hypnotic action in inverse proportion to the amount of oxygen present in their lateral radicals. That such reduction explanation is almost certain to be true is proved experimentally by the fact that ether, chloroform, chloral, and alcohol reduce the oxidizing power of living cells. Moreover the physical theory of Overton and Meyer fails entirely to afford any explanation of the action of the most typical member of the group—alcohol.

The more closely we examine the physical and vitalistic conceptions of drug action the more certain does it appear that behind the operation of physical laws and vital activity, chemical reactions are continually taking place which are the real cause of the physical forces being themselves set in motion. Such a statement as this might at first sight appear to be bringing us perilously near to a futile discussion on the origin of life should we venture to define life itself simply as a form of chemical action as some have done. But it is quite another matter to recognize that the original fiat—"Let there be life"—effects its mysterious design through the operation of chemical laws aided by the physical forces which are to be seen in action everywhere around us.

As I draw these necessarily disjointed generalizations to a close, let me for a brief moment turn from the theories of drug action to a wider arena, where we may see in active operation all the forces which are probably also busily engaged in every pharmacological experiment. It will widen our horizon to realize what the application of a chemical hypothesis is doing for the science of pathology, upon which science only can we hope to build up a rational therapy. I will therefore ask you to glance at a subject which has engaged the attention of every pathological explorer since the advent of Virchow's conception of the cell being the structural unit of the living organism. I refer to the mechanism of inflammation. The most prominent and constant feature observable in the early stage of a local inflammatory process is the remarkable phenomenon of the invasion of the site of inflammation by hosts of leucocytes. Whence they come in such increased numbers into the circulating fluid we need not pause to consider; we are mainly concerned with the fact of their rapid swarming to the seat of injury. Why do they come? Can any explanation be given of their remarkable behaviour in penetrating the capillary walls and migrating far and near into the injured tissues? Whether we accept the earlier views of Metchnikoff and regard them as fighting cells or accept the later view of Baumgarten, which gives to them the position of grave diggers, we long for some light on the way in which they are seen to engulf foreign bodies such as bacteria or fragments of perished tissue.

Those who swallow the doctrine of vitalism have no difficulty in regarding each leucocyte as a sentient and discriminating gourmand who carefully selects and enjoys his food, who occasionally, disdaining the limits of his little reign, breaks bounds voluntarily, and may even seem in so doing to snatch a fearful joy. The scientist, however, explains easily the entire phenomenon in a perfectly rational manner by the application of the bio-chemical principle known as chemiotaxis.

It has been demonstrated that certain chemical substances powerfully attract the leucocytes, and these amoeboid organisms are seen to be drawn towards them when such compounds are brought anywhere near their zone. It appears to be absolutely certain that the immigration of the white cells into the site of an inflammatory action is determined by a chemical change in the protoplasm of the injured tissue or to the presence of a soluble chemical in its fluid constituents.

If any one doubts that the apparently volitional movements of a leucocyte cannot mostly be explained in this easy manner, he has only to resort to the simple experiment of manufacturing for himself an artificial amoeba and watching its extraordinary behaviour when various substances are brought into its presence. By placing a single drop of oil of cloves in a small dish partially filled with a mixture of alcohol and glycerine, the little bladder of oil floating on the surface will be found in structural and other peculiarities to conform to the type of an amoeba, and I have been able to form even vacuolated artificial amoebae by pouring chloroform into strong perchloride of iron solution.

Rhumbler's clove oil amoeba may be made to perform all the puzzling antics of a living leucocyte by gently injecting into the liquid in its immediate vicinity substances which alter the surface tension on one side of the sphere. In this manner it can be made to throw out pseudopodia like a living cell. A chloroform droplet in water can be repeatedly fed by various substances which it will take into its interior. If an insoluble solid, as a particle of quartz, coal, or glass, be coated over with a thin layer of shellac and presented to this artificial amoeba it is speedily swallowed, engulfed or surrounded, and after it has digested or dissolved its resinous envelope the droplet disgorges its indigestible prey. If the lac be offered in the form of a drawn out thin thread of sealing wax it will be seen to seize it by its middle and bend it, after which it throws out pseudopodia to the ends of the thread so as to pull the thread within itself by coiling it up in its interior till its solution, or we may say till its digestion, is completed.

The startling lifelike osmotic growths of Stéphane Leduc illustrate but another phase of the same phenomenon. These fantastic formations of dead sterilized chemical substances absorb food into their interior, break it up chemically, expel the waste products of the reaction, using only those necessary for their growth. They reject some chemical substances when offered to them and greedily absorb others; they grow up vigorously during their short-lived youth; remain stationary for a time, then die and suffer disintegration like living beings.

These phenomena of chemiotaxis and alterations in the surface tension so closely simulate life that many observers have ceased to hesitate to apply their action to the explanation of the behaviour of the leucocytes in the inflammatory area, though Jennings thinks that he sees a fundamental difference in the flow of the fluid contents. Each amoeboid leucocyte contains its own co-ordinated system of enzymes, the ceaseless activity of which is incessantly effecting changes of a chemical nature in the surrounding liquid medium by which the laws of surface tension and chemiotaxis are kept in constant action.

It is not only in the mechanism of the inflammatory process that chemiotaxis has been shown to play such a prominent part. From the biologist's point of view the crowning or supreme function of the living organism is seen in the phenomenon of reproduction. I need not remind you how Sir John Bland-Sutton, in the fascinating and original oration of last year, referred to the subject of gametic attraction, in which is witnessed the operation of some powerful and mysterious force by means of which the spermatozoon is drawn towards the passive yolk-laden ovum. Pfeffer experimentally demonstrated that malic acid strongly attracts the spermatozoids of various ferns when brought within their zone. Now, this substance has been found to be produced within the female sperm cell, and it can hardly be doubted that it is the agent which determines the actual contact of the male with the female elements of the cryptogam. It was to the discovery of this strange phenomenon that we owe the origin of the term "chemiotaxis"—a force which thus plays a leading part not only at the very inception of the life of the new individual, but all through his prolonged struggle against disease and final dissolution.

When we are thus enabled to realize the prominent part which chemical laws play in the phenomena of inflammation, and likewise also in the process of immunization, it cannot but aid us in accepting at least the high probability if not the actual proof of the force of such factors operating in all drug action. We then in renewed hope and strong faith can look forward to our arrival at the final goal of a rational therapy by travelling on the guiding lines which the genius of Ehrlich and of Wright has laid down for future research work.

THE late Dr. Alfred Chune Fletcher, Resident Medical Officer of Sutton's Hospital in the Charterhouse, left estate valued at £18,441.

THE Fourteenth International Antialcohol Congress will be held in Milan in September (22nd to 28th). The proceedings will be introduced by Professor Ettore Marchiafava, of Rome, with an address on the pathology of alcoholism. One day will be devoted to a discussion of the relations between the campaign against alcohol and the interests of viticulture.

FURTHER EXPERIENCE OF THE CARDIAC SIGN IN CANCER.

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SOME nine years ago[1] I drew attention to a cardiac sign in cancer which seemed to possess some diagnostic value, and over four years ago[2] I published evidence that this value existed. I now desire to bring forward further evidence corroborating the former, and, from fuller experience, to define more closely the extent of the value and its limitations. May I remark that our means of diagnosing cancer, even in its later stages, are not always so perfect as to make any help superfluous?

The cardiac sign in cancer consists of a remarkable diminution of the cardiac dullness in the recumbent posture as determined by digital percussion. In that posture the dullness, in the normal adult, begins above about the third costal cartilage, reaches rightwards as nearly as possible to the mid-sternal line, and measures across about 3 to 3½ in. at the level of the fifth costal cartilage. On the other hand, in the cancer patient who presents the sign the cardiac dullness in recumbency begins above about the fourth or fifth costal cartilage, has its right margin ½ in. or 1 in. to the left of the mid-sternal line, and measures across less than 2 in. at the level of the fifth costal cartilage. Often it measures less than 1 in. across. Sometimes there is no cardiac dullness at all.

Digital percussion is a good deal dependent on personal factors. The measurements I am here quoting refer to my own observations. Others may find somewhat different limits. The percussion I use is moderately light.

The sign may be explained in three different ways:

1. In some cases of cancer the heart is small, and this reduction in size has been said to account for the reduction of the dullness. It may sometimes partly explain it; but by no means always; for often the dullness, though very small in the recumbent position, is normally or even abnormally broad in the erect.

2. If the loss of elasticity, so common in the skin in cases of cancer, affects the lung as well, it is conceivable that ordinary respiration may induce a sort of spurious emphysema and thus diminish the dullness. It is now known that a peculiar form of emphysema does often occur in cancer—Fenwick found it in 28 per cent. of his cases of gastric cancer[3]—and no doubt in many cases this helps to produce the sign.

3. The cardiac sign is often associated with a remarkably soft and toneless pulse, and with very feeble heart sounds. If we suppose that the first is due to a deficiency of blood—such as the anaemia so often present suggests—and that the second shows a flabbiness of the heart muscle comparable to the flabbiness of the skeletal muscles so often recognizable in such patients, it is not difficult to imagine a flabby and imperfectly filled heart dropping back from the anterior chest wall on recumbency more than a normal heart would do. And this is just what actually seems to occur. For the disparity between the heart dullness in the erect and recumbent positions in cancer is usually much greater than that observed either in health or in other diseases. I have found, for instance, a heart dullness in a case of cancer, measuring 5 in. across in the erect position, drop to 1½ in. across when the recumbent posture was assumed. Indeed, in cases where an enlarged heart prevents the appearance of the cardiac sign as I have defined it, I have thought that such an exceptional disparity in the erect and recumbent dullnesses, or an exceptional withdrawal leftwards of the rightward edge of dullness on assuming the recumbent position, had almost the same meaning as the cardiac sign itself. That, however, requires further investigation.

But it is necessary to bear in mind certain obvious limitations of the sign's significance. Thus, when any cause is present tending, like common emphysema, to reduce the heart's dullness, then a very small cardiac dullness has naturally no special meaning. Also where, in a case of suspected cancer, some well known cause of enlarged cardiac dullness is present, such as albuminuria, valvular heart disease or retraction of lung from phthisis or former pleurisy, then the absence of the cardiac sign is, of course, of no significance.

To these obvious limitations I would add two others, from experience, less obvious and yet easily understood. Where the heart is considerably displaced upwards by abdominal distension, I have found the sign unreliable Here clearly the organ is pushed from a wider into a narrower space, where it cannot so easily drop away on recumbency from the anterior chest wall. Again, where a large oesophageal cancer has lain just behind the heart the sign has been absent, and I have thought that this might be explained by the growth pinning the organ forward against the sternum and rib cartilages.

TABLE I.—*Thirty-six Cancer Cases in which all other Causes tending to Reduce the Cardiac Dullness were Absent.*

Seat of Disease.	Age.	Loss of Weight, etc.	Cardiac Dullness.	
			Width.	Upper Level.
			Inches.	Rib.
Stomach	46	Late. 1 stone lost; trace of albumen	Almost none	
Stomach	64	Late. Died soon; 30 lb. lost	2/4	—
Stomach	66	Late. Died soon	2/4	—
Stomach	60	Late. Tumour	7/8	5th
Stomach	38	Early. Operation; removed; microsc.	1	5th
Caecum	50	Late. Emaciated; gland microsc.	1	—
Rectum	55	Late. Extremely thin; palpable	1	4th
Prostate	49	Late. Ulcer into rectum	1	5th
Stomach	54	Late. Operation; microscop.	1½	4th
Stomach	45	Late. Tumour; 2 stone lost	1½	4th
Stomach	66	Glycosuria. Died 8 months later of cancer of liver	1½	5th
Pharynx	54	Large fixed glands in neck. Iodide useless	1½	4th
Liver	45	Late. Trace of albumen	1½	4th
Colon	62	Late. Died a month after leaving hospital	1⅝	4th
Stomach	47	Late. Tumour	1¾	4th
Sigmoid	42	Late. Mass palpable; 2½ stone lost	1¾	4th
Cervix uteri ...	50	Not quite fixed	1¾	4th
Recurrence in brachial plexus	64	After removal of glands in axilla	1¾	5th
"Abdominal" ...	48	Late. Nodule microsc.	1⅝	4th
Rectum	62	Early. Some loss of flesh; operation; removed	1⅞	4th
Oesophagus ...	56	Late. *P.M.*	1⅞	4th
Pancreas	70	Late. *P.M.*	1⅞	4th
Stomach	66	Late. Died "evidently from cancer"	1⅞	4th
Stomach	64	Late. Tumour	1⅞	—
Stomach	70	Late. Tumour	Under 2	—
Caecum	68	Late. Died; tumour and large fixed glands	Under 2	—
Oesophagus ...	68	Late. Died	Under 2	—
"Abdominal" ...	77	Late. Died; doctor sure it was cancer	Under 2	—
"Abdominal" ...	70	Late. Also cancer of breast	Under 2	—
Skin of neck ...	73	Late. After removal of tongue	Under 2	—
		EXCEPTIONS.		
Stomach	44	7 months' duration. Lost 3½ stone; advised exploration; died 8 months later of perforation; operation	3½	3rd
Ovary	47	3 months' pain. No loss of flesh; healthy appearance; advised exploration; operation; removed	3½	3rd
Rectum	56	Late. Fixed; considerable wasting	3½	3rd
Transverse colon	50	1 month symptoms. No loss of flesh; healthy appearance; diagnosed cancer; operation; too adherent to remove	3	3rd
Stomach	60	Late. Tumours, apparently in stomach and liver; loss of flesh; no free HCl	2	4th
Stomach	56	Late. Large tumour, apparently gastric; loss of flesh 1 stone	2	4th

Yet, allowing for all these limitations to its employment, there remains a very large number of cases in which its usefulness or uselessness can be tested. In the accompanying lists it should be understood that all sources of error from any of the causes I have mentioned have been carefully excluded.

What, then, is its precise value?

In 1908, from a study of 103 cases,[2] into all of which a suspicion of cancer had entered, I obtained the following figures: Of 38 cases in which a presumable cancer was naturally accessible to direct observation or was examined at operation or *post mortem*, 89 per cent. showed the cardiac sign. Of 19 cases which ended fatally in accordance with a diagnosis of cancer, nearly 90 per cent. showed it. Of 46 cases, on the other hand, which could not be supposed to have been cancerous, it was only found present in 24 per cent.

My further experience bears out this contrast. During the last four years I have collected 107 cases, either cancerous, simulating cancer, or accompanied by loss of flesh. They indicate that whereas in cancer the sign is present in an overwhelming majority, in non-cancerous cases it is even rarer than my former figures suggested.

Thus, of 36 cases which appear undoubtedly to have been cancerous, 83 per cent. showed the sign (Table I), whereas of 71 cases which cannot be supposed to have been cancerous, only 8 per cent. showed it (Tables II and III).

Putting together this series and that of 1908, we obtain 93 cancerous cases showing the sign in nearly 87 per cent., and 117 non-cancerous cases showing it in only 14 per cent.; or, considering the results in another way, of 98 cases showing the cardiac sign 82 per cent. were cancerous, and of 112 cases not showing this sign 88 per cent. were non-cancerous.

To be entirely fair, however, only such cases should be compared with the cancerous as themselves were open to a possibility of malignancy like those dealt with in 1908. Amongst those enumerated in Tables II and III, I think 37 cases may be so regarded, as may also the 6 exceptions.

TABLE II.—*Twenty-eight Cases of Pronounced Non-cancerous Wasting, in which Heart, Lungs, and Kidneys were Healthy.*

Disease.	Age.	Loss of Weight, etc.	Cardiac Dullness.	
			Width.	Upper Level.
Addison's disease	43	3 stone	Inches. Increased.	Rib.
Leucocythaemia	43	6 stone	5½	3rd
Diabetes	63	"Much loss"	4	3rd
Diabetes	58	"Much loss"	4	3rd
Hysterical polyuria	54	Over 3 stone. Better 6 months later	4	3rd
Gall stones ...	49	½ stone. Well 2 years later	4	3rd
Diabetes	35	3 stone	3⅞	3rd
Diabetes	21	1 stone	3⅞	3rd
Diabetes	20	2 stone	3½	3rd
Diabetes	33	4 stone	3½	3rd
Diabetes	32	"Emaciated"	3½	3rd
Tuberculous glands	34	"Considerable loss." Operation; micros.	3½	3rd
Gastritis	62	3 stone. Well 6 months later	3½	3rd
Psoas abscess ...	53	"Great loss"	3½	3rd
Diabetes	74	"Great loss"	3⅜	3rd
Addison's disease	21	"2 or 3 stone." No question of cancer	3½	3rd
Gastritis	20	Probably 1 stone	3½	3rd
Gastritis	34	"Very much loss." Operation; no cancer	3	3rd
Tuberculous peritonitis	16	"Much loss"	3	3rd
Tuberculous peritonitis	17	"Much loss"	3	3rd
Diabetes	30	"Considerable loss"	3	3rd
Diabetes	35	2 stone	2¾	3rd
Gastric ulcer ...	37	Emaciated; perforated; operation; no cancer	2½	4th
Gastric ulcer ...	27	"Great loss"	2⅜	3rd
Psoas abscess ...	22	2½ stone	2½	3rd
Febrile enteritis	42	Great loss. Recovered.	2	4th
		EXCEPTIONS.		
Gastritis	55	2 stone. Much better 6 months later	Under 2	—
Gastritis	69	"Many pounds loss." Better 3 years later	Absent.	—

TABLE III.—*Forty-three Non-cancerous Cases, either with Wasting or with Suspicion of Cancer, in which Heart and Lungs were Healthy and Bright's Disease absent.*

Disease.	Age.	Loss of Weight, etc.	Cardiac Dullness.	
			Width.	Upper Level.
Mucous colitis ...	63	Well 3 years later	Inches. 4	Rib. —
Ovarian tumour...	47	Operation. No cancer	4	3rd
Gall stones ...	49	Lost 20 lb. Much better 2 years after	4	3rd
Gastritis	53	Well 3½ years after	4	3rd
Hæmatemesis ...	56	Well 1 year after	4	3rd
Operation for piles	37	No cancer	4	3rd
Abscess left kidney	43	Urine normal. Operation	4	3rd
Gastritis	36	Lost a good deal of weight. Well 18 months after	3½	3rd
Gastritis	48	His doctor suspected cancer. Well 1 year after	3½	3rd
Gastritis	29	Lost a good deal of weight. No cancer	3½	3rd
Tuberculous kidney	28	Urine normal after removal. Great wasting	3½	3rd
Gastric ulcer ...	41	Much better 2 years after	3½	3rd
Mucous colitis ...	39	Lost ½ stone. Well 5 months after	3½	3rd
Gastritis	62	Lost 3 stone. Well 6 months after	3½	3rd
Abscess of thigh...	66	Lost some pounds	3½	3rd
Miscarriage ...	25	"Much thinner"	3½	3rd
Hydronephrosis...	65	—	3½	3rd
Splenomegaly ...	43	No suspicion of cancer. Improved	3½	3rd
Gall stones ...	55	Operation. No cancer	3	3rd
Appendicitis ...	60	Lost much weight. Operation; no cancer	3	3rd
Neurasthenia ...	55	Lost much weight. Well 1 year after	3	3rd
Gastritis... ...	37	Had lost weight. Greatly improved	3	3rd
Hysteria	42	Extremely thin. Greatly improved	3	4th
Ovarian tumour	30	Loss of weight. Operation	3	3rd
Gastritis	37	—	3	3rd
Tuberculous bladder	30	Bright's disease absent	3	3rd
Goitre	43	Had lost weight. No evidence of cancer	3	3rd
Gastritis	48	Very thin. Well 1 year after	Normal	
Abdominal adhesions	65	Operation. No cancer	Normal	
Duodenal ulcer ...	60	Lost much weight. Operation; no cancer	Normal	
Thyroid tumour	56	Hard, nodular, adherent. Well 3 years after	Broad	
Abscess in pelvis	53	Question of sarcoma. None found	Normal	
Gastritis	63	Family history of cancer. Well 3 years after	Normal	
Gall stones ...	60	Well 1 year after	Normal	
Neurasthenia ...	47	Well 1 year after	Normal	
Dysphagia ...	34	Well 3 years after	Normal	
Gastritis	38	Very thin. Well 4 years after	Normal	
Gastritis	56	Losing weight. Well 2 years after	2½	3rd
Gastritis	31	Stomach dilated. Well 4 years after	2½	—
		EXCEPTIONS.		
Gastritis	52	Advised exploration. Well 3½ years after	1	4th
Dilated stomach	47	Better 2 years after	¾	5th
Gastritis	44	Lost ½ st. in 2 months. Better 4 years after	¾	—
Dysphagia... ...	64	? Cause. Now has jaundice, but no proof of cancer	Absent	

Here, therefore, we have a series comparable to that which I published in 1908. They give a percentage of only 14 showing the cardiac sign. Adding the two series (of 1908 and 1912) together, we obtain 89 cases non-cancerous but more or less open to the suspicion of being cancerous, with only 19 per cent. showing the sign, a striking contrast to the actually cancerous cases; and of 88 cases which did not show the sign 85 per cent. were non-cancerous.

So that in a suspected case of cancer the presence of this sign adds considerably to the likelihood of the presence of cancer and its absence to the likelihood of the absence of cancer, except, I should add, in early cases.

But it has been objected by an able observer that the sign is only corroborative of considerable wasting. If this were correct, the sign would only be a curiosity. The following facts show that his suggestion is mistaken.

In non-cancerous wasting, even when extreme, it is rarely present (Table II).

In cancerous wasting, even when marked, it is occasionally absent (Table I).

In cases of cancer which have not wasted at all, it is sometimes present (Table I).

Indeed, it is not apparently even true that the diminution of the dullness in cancer is proportional to the wasting (see Table IV).

TABLE IV.—*Cancer Cases in which the Amount of Wasting is indicated distinctly (in* TABLE I).

Amount of Wasting.	Cardiac Dullness.		Amount of Wasting.	Cardiac Dullness.	
	Width.	Upper Level.		Width.	Upper Level.
	Inches.	Rib.		Inches.	Rib.
None	3½	3rd	2½ stone ...	¾	—
None	3	3rd	2½ stone ...	1½	4th
1 stone... ...	Almost none		3½ stone ...	3½	3rd
1 stone... ...	2	—	"Extremely thin"	1	4th
2 stone... ...	1½	4th	"Emaciated"	1	—

One very important question—the value of the sign in operable cases—I cannot settle because so few operable cases, satisfying the conditions I have laid down, have presented themselves. But it is worth mentioning that of 6 operable cases 4 gave the sign.

Another important question—how often the sign may lead one into error—can be reasonably answered. If ordinary care be taken and the frequency of its occurrence in cancer and of its non-occurrence in other cases be remembered it should rarely mislead. In the cancer cases which were operable it caused no mistake. In non-cancerous cases it has, perhaps, induced me to suggest exploration unduly often—a pardonable error—and in several to hazard an erroneous forecast. On the other hand, had I paid more heed to it, I should have saved myself more than once from mistake.

In sarcoma I have noticed that the sign seems less commonly present.

With regard to some of the earlier cases it is instructive to recall the opinions of others—all men well qualified to form a sound judgement, but without the advantage of experience of the sign.

Caecum.—Diagnosed five weeks before a distinguished surgeon would accept the opinion and operate. After operation the growth recurred.

Sigmoid.—A well-known surgeon declined to admit that a diagnosis was possible; it had been made, however, and on operation a cancer was found and removed. It has not recurred during five years.

Stomach.—An able surgeon declined to accept the diagnosis and to operate. He operated, however, several months later. Cancer was found (microscoped).

A friend of mine, who habitually looks for the sign, has had a similar experience to these. He sent an early uterine cancer to a well-known specialist. The specialist declined to operate, because he considered the case was not cancerous. In fact, I believe he treated my friend with some contumely. Later on, when the case was inoperable, he apologized.

In conclusion, I would sum up thus the results of my experience:

1. The sign is of practical value.
2. If present in a case where the presence of cancer is possible, the diagnosis of cancer should only be rejected after most careful consideration.
3. If absent in what may be an early case of cancer, little stress must be laid on its absence.
4. But if absent in what must be, if cancer at all, a late case of it, its absence strengthens considerably the likelihood of the absence of the disease.

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LIPODYSTROPHIA PROGRESSIVA.*

BY

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I WOULD define lipodystrophia progressiva (λίπος = fat, δυς = bad, τροφή = nourishment), a term for which we are indebted to Dr. A. Simons[1] of Berlin, as a morbid condition, possibly confined to the female sex, and characterized by progressive disappearance of the subcutaneous fat from the face, upper extremities, and trunk, whereas the fat of the lower extremities and gluteal regions remains unaffected or is increased in amount. In some cases, perhaps, the condition is one of pathologically altered distribution of fat rather than of genuine wasting, or possibly merely of relative excess of fat in the lower extremities and buttocks of an otherwise rather thin subject. Although I have retained the adjective "progressiva" as suggested by Simons, it is by no means certain that the disorder is always a progressive one. In all probability all degrees of this abnormal fat distribution occur, progressive in some subjects, and arrested or stationary in others, whilst in yet other cases the condition may probably occur as only a temporary feature in the life-history of a patient or as little more than a slight exaggeration of a normal female sex character. In this connexion it must of course be remembered that the development of subcutaneous fat is greater in the thighs and gluteal regions of the average human female than of the average male. This local distribution of subcutaneous fat constitutes practically a secondary sex character, and the gluteal prominence is greatly exaggerated in some African races, constituting the racial peculiarity known as "steatopygia," which is illustrated by the pictures of the "Hottentot Venus."† In regard to the occasional exaggeration of this sex character in Europeans I would quote a remark made by Pierre Marie at the discussion of a case at the Société de Neurologie, at Paris, July 11th, 1912—namely, that it is not rare to meet with women the upper part of whose bodies is emaciated in comparison to the fatness of their lower limbs. A curious fact is that in some pathological conditions, notably in the case of a young woman shown by Dr. H. G. Turney at the Royal Society of Medicine on March 5th, 1913, as probably an example of "a pituitary and adrenal syndrome," this sexual predominance of subcutaneous fat about the thighs and gluteal regions is altogether wanting, though there may be an apparently excessive accumulation of subcutaneous fat in the face and trunk.

In June, 1911, I saw a young unmarried woman, aged 27, of Jewish parentage, who had lost almost all the subcutaneous fat from her body, but less from the parts below the iliac crests and groins—that is to say, from the buttocks, thighs, and legs—than from the trunk, face, and upper extremities; moreover, there was no extreme loss of fat from the orbits or mammae. I found no evidence of any visceral disease. There was a report of temporary glycosuria about one year previously,‡ which I

*A paper read at the Neurological Section of the Royal Society of Medicine on May 22nd, 1913.

† In regard to the racial distribution of "steatopygia," see S. G. Shattock, On Normal Tumour-like Formations of Fat in Man and the Lower Animals, *Proceedings of the Royal Society of Medicine, Pathological Section*, London, 1909, pp. 209–226.

‡ Transient glycosuria is, I believe, not rarely to be found in young persons with various disorders of general nutrition and development. I have noted it myself in an undeveloped girl of the "mitral infantilism" class, and in a young woman with a moderate degree of infantilism of the "ateleiosis" class. I showed both these cases at the Royal Society of Medicine in the first half of 1913.

regarded as of no importance. The clinical history was that the patient was a healthy girl up to the age of 16 years, when the menstrual periods commenced. Since then her general condition had been unsatisfactory. She had suffered from a certain amount of pain with the periods, and likewise complained of dyspnoea and of insomnia, for which she had taken various drugs. She was likewise discontented with life in her parents' home, and was desirous of obtaining some useful occupation, which would render her more independent. In January, 1913, I heard that her condition remained much the same. There was some neuropathic family history.

The condition had to be regarded as a peculiar variety of emaciation, probably in some way dependent on the nervous system, the distribution of the fat-atrophy being specially affected by the patient's sex, so that the lower extremities (normally very liberally supplied with subcutaneous fat in females) retained their fat.

At the time when I saw this patient in 1911 I already had seen one similar case:

A young woman, aged 21 years, was brought before the Clinical Society of London on March 22nd, 1907,[2] by Dr. Harry Campbell, who described the case as one of "disappearance, more or less complete, of the subcutaneous fat above the region of the lower extremities." The wasting of the fat was specially marked in the face, chest, and abdomen, including the region of the mons veneris, but there was no disappearance of fat from the mammary glands or the orbits, and there was an abundant deposit of subcutaneous fat in the buttocks and lower extremities generally. The patient, who was of Jewish parentage, was said to have been perfectly normal up to the age of 6 years, but from that time to the age of 14 years the fat gradually disappeared from the affected regions. The fat first disappeared from the face, and then the process of fat-absorption gradually spread downwards at the rate of about one inch every year. Six years later Dr. Campbell showed the case again, and said that the absorption of subcutaneous fat had spread about six inches downwards during the six years' interval. The orbital fat and the mammary fat still remained unaffected. Tests revealed no difference between the secretion of the sudoriferous glands in the affected and unaffected areas. He regarded the case as one of "trophic" changes of obscure origin.[3]

A very similar case was described and illustrated by Dr. Eugen Holländer, of Berlin,[4] in 1910:

In a young woman aged 21 years the intraorbital fat appeared to some extent to have shared in the atrophic process, so that the patient had a peculiarly cadaverous expression. The cheeks were sunken and the orbits were hollowed out around the eyes. The mammae were round and hard, but apparently consisted of glandular tissue only. The superficial muscles of the neck, trunk, and upper extremities were mapped out, as in "anatomical manikins." Below the hips, on the contrary, all the parts were covered by subcutaneous fat in abundance, and, indeed, there was decided excess of fatty tissue in the outer parts of the thighs. Except for a rotatory nystagmus, apparently of congenital origin, nothing else abnormal could be discovered. All kinds of treatment had been tried, but had failed to fatten the patient—that is to say, to fatten the emaciated parts—but from the cosmetic point of view Holländer seems to have been more successful by injecting a sterilized mixture of human fat and mutton suet into the subcutaneous tissue of the face.

Sir William Osler has very kindly told me of a similar loss of subcutaneous fat, but occurring in a much younger girl.

The patient was only 10 years old in 1895, when she was first brought for treatment as a dispensary patient in America. The contrast between the extreme thinness of the face, trunk, and upper extremities and the plumpness of the part below the hips was very great. She had begun to get thin five years previously, the loss of flesh being first noticed on the face and back. She was very pale. Her mother and mother's mother were said to be "nervous."

Information obtained in February, 1913, showed that menstruation had commenced when the girl was 12 years old, and that her general condition improved afterwards. Her face had still little subcutaneous fat, though more than it had before, but no complete examination of the patient had been made during late years. Though she still looked thin and weak, she said that she felt well and was much stronger than most women. The tendon reflexes were excessive.

A case, evidently of the same class, was described by A. Pic and Ch. Gardère at the Society of the Medical Sciences of Lyon on December 23rd, 1908, as an example of "generalized atrophy of the face and parts of the body above the umbilicus with pseudo-hypertrophy of the pelvic region and lower extremities."[5]

The patient was a woman (age not stated) whose illness had commenced four years previously, with sudden loss of weight and strength, anorexia, digestive troubles, and pallor. There was no cough. She was unable to continue her work, as the slightest effort gave rise to palpitation of the heart and feeling of oppression. She was also mentally depressed, and gave way to frequent attacks of crying without any reason. After a "rest and feeding cure" she commenced to regain strength, the lower extremities increased in size, and her pallor disappeared. At last, after an interruption of one and a half years, she was able to start work again. Nevertheless, her face, upper extremities and thorax remained emaciated, whilst her lower extremities progressively increased, chiefly in amount of subcutaneous tissue, so that their size came to be in striking contrast to the skeleton-like appearance of her face and the upper part of her body, in which, however, the mammae retained their normal size. The tendon reflexes in both lower and upper extremities were markedly exaggerated; in the lower extremities more than one jerk was sometimes obtained by a single tap ("clonic or trepidation type" of response); the plantar reflexes were of the normal flexor type; no disorder of sensation was present. Electrical examination of the muscles showed nothing abnormal. Her gait was natural, and there was no longer any special tendency to fatigue on exercise. Some physical signs in the chest pointed to the presence of slight pulmonary tuberculosis. Menstruation (which had commenced at the age of 15) was regular, and had always been so, excepting at the commencement of her illness four years previously, when she had amenorrhoea for six months.

The case of "segmentary adiposis of the lower limbs," recently published by Laignel-Lavastine and Viard,[6] must probably be regarded as belonging to the group we are now considering, though the emaciation of the face and upper part of the body was less decided.

Their patient was an unmarried woman, aged 39, an embroiderer, who complained of great enlargement of the lower extremities. This commenced, according to the patient's account, at the age of 22 years, and first involved the legs, then the thighs, and lastly the buttocks. Various methods of treatment had been resorted to (thyroid extract and iodine, milk diet, etc.), but without satisfactory results. The great size of her lower extremities offered a striking contrast to her thin chest and the general slenderness of the upper part of her body. The left thigh was decidedly larger than the right thigh, but both thighs, both buttocks, and both legs shared in the enlargement. The mammae were very small. The thyroid gland was slightly enlarged. The menstrual periods, which had commenced at 14 years of age, lasted only two days each time. At the Salpêtrière the patient had been given thyroid and ovarian extracts, but as yet without any effect on the size of the lower extremities.

Laignel-Lavastine and Viard, besides the case of Pic and Gardère already described, quote a case published by L. Barraquer, at Barcelona, in 1906.

A young woman, aged 25 years, in her 13th year, after an attack of "influenza," had commenced to waste rapidly in her face and the upper part of the chest. These wasted parts contrasted strikingly with the plump condition of the rest of her body.

It seems, therefore, that "lipodystrophia progressiva" varies in degree in different cases. In some cases it is the excessive growth of subcutaneous fatty tissue in the lower extremities that attracts attention rather than any very decided emaciation in the face and upper parts of the body. In such cases the condition may be regarded as an exaggeration or caricature of the ordinary tendency to fat distribution which constitutes almost a "secondary female sex character." In other cases the wasting of the face and upper part of the trunk first attracts attention, the wasting usually commencing in the face, neck, and upper part of the thorax and spreading gradually downwards. In some of these latter cases the onset of the wasting may be fairly sudden, and the disease may, for a time at least, be associated with anorexia, neurasthenic symptoms, and excess of knee-jerks and Achilles-jerks. Such excess of tendon reflexes is often met with in persons of nervous temperament, and, I think, more frequently in persons of Jewish than in those of Anglo-Saxon or Teutonic descent. It may here likewise be noted that the first two patients whose cases I have above referred to were of Jewish descent, and it is possible that some of the other patients were also of that race.

The symptoms may commence in quite early life, at 10 or 13 years, or later on, up to between 20 and 30 years of age. The disease, though it seems (at all events in its most typical forms) to be confined to the female sex, does not appear to be connected with any obvious disease of the thyroid gland or ovaries. In a sense it might certainly be called a "trophic disease," but it is of uncertain origin, and no successful treatment has yet been discovered for it.

In regard to diagnosis, the distinctions from the cases of "trophoedema," as described by H. Meige and others.

seem to me too obvious for discussion, and the same may be said in regard to the conditions of muscular hypertrophy or pseudo-hypertrophy met with occasionally in various cases of primary muscular dystrophy, as well as in the typical pseudo-hypertrophic group. Other diseases, such as the various forms of chronic oedema and elephantiasis in the lower extremities connected with lymphatic obstruction, are still less likely to be confused. Just at the commencement, when the atrophy of subcutaneous fat is still almost limited to the face, the condition might possibly resemble that seen in cases of "bilateral atrophy of the face"; indeed, it is just conceivable that certain cases of bilateral atrophy of the face may have been mild examples of lipodystrophia progressiva, modified by the male sex of the patients, males not being so inclined as females to special deposit of subcutaneous fat in the lower extremities. At the Clinical Society of London, in 1905,[7] H. Batty Shaw showed a boy, aged 10 years, who had commenced to show bilateral wasting of the subcutaneous tissues of the face when he was 2½ years old. The boy was brought to the hospital because the mother feared he might have tuberculosis. A. F. Hertz and W. Johnson,[8] at the Clinical Section of the Royal Society of Medicine, in January, 1913, showed a young man, aged 26 years, whose face had become progressively thinner during the last two years, so that his friends thought he must be consumptive. There was no weakness of the facial muscles, and otherwise he was well developed and strong. I instance these two cases of facial wasting in males to illustrate the kind of cases of "bilateral atrophy of the subcutaneous tissue of the face" to which I wish to draw attention in connexion with the diagnosis and pathological classification of "lipodystrophia progressiva."

I have given no photograph or drawing of the condition of lipodystrophia progressiva, but no such illustration is needed. For a typical case one need only imagine a grotesque figure the lower part of which seems to be modelled after an extraordinarily florid Venus of the ultra-Rubens style, whilst the face and upper part of the trunk might call up a picture of one of the forbidding Moerae, or their dreaded sisters, the Erinyes, or might bring to mind the popular idea of one of the witches in *Macbeth*.

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THE estimated population of Jamaica in 1912 was 845,767, an increase of 6,520. The marriage-rate was 4.2 per 1,000 persons living, the birth-rate was 39.0 per 1,000, and the death-rate 22.1; the infantile death-rate per 1,000 births was 18.7 under 1 year old, and 27.4 under 5 years old. In 75.2 per cent. of the deaths registered during the year the causes of death were not medically certified. The principal causes of death were diarrhoea and enteritis, debility, phthisis, and enteric fever; 84 deaths were recorded as having been caused by "the vomiting sickness," 21 of these being medically certified. On April 1st, 1912, there were 127 names on the Jamaica Medical Register.

THE so-called sleeping sickness of Nyasaland, called by the natives kaodzera, differs in certain respects from the typical sleeping sickness, and the Royal Society's Commission finds that the trypanosome present in the disease, though it resembles *T. brucei* and *T. gambiense*, is a distinct species identical with *T. rhodesiense* (Stephens and Fantham). These observations were reported to the Royal Society, and have been published in the *Journal of the Royal Army Medical Corps* (May, 1913). The authors of the report are Sir David Bruce, Majors D. Harvey and E. A. Hamerton, R.A.M.C., Dr. J. B. Davey, Nyasaland Medical Staff, and Lady Bruce. The parasite resembles *T. brucei* more closely than *T. gambiense*. It is concluded that the human trypanosome disease of North-East Rhodesia and Nyasaland is not the disease known as sleeping sickness in Uganda and the West Coast of Africa, and it is suggested that the native name kaodzera might be used for this disease to distinguish it from the older-known sleeping sickness.

CHRONIC PNEUMOCOCCAL INFECTION OF THE LUNGS IN CHILDREN.

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SINCE the beginning of the routine examination of elementary school children there has been much discussion on the prevalence of phthisis in children of school age, and while some medical inspectors consider that the disease is uncommon in school children, or at any rate not to be diagnosed always with assurance, others seem to believe that the cases are numerous and easily recognized. Indeed the amplitude of variation in figures given in the report of the Chief Medical Officer of the Board of Education compels the suggestion that the prevalence of phthisis in certain school areas may be not so much a matter of pathological fact as of clinical bias. For instance, the percentage of phthisis among the Staffordshire school children examined in 1910 was 0.151; the percentage in Worcestershire was 4.183; and yet the phthisis death-rate of these counties was the same, namely, 0.7.

It is, of course, the experience of all clinical observers to see children in whom the pulmonary signs suggest the presence of phthisis. These cases present the following features: (1) they are often the sequels, immediate or remote, of measles or whooping-cough; (2) cough, sputum, and emaciation are variable in amount or degree; (3) tubercle bacilli are not found in the sputum. It may be argued that these are cases of mild or chronic phthisis. We are of the opinion that phthisis is seldom mild or chronic in children; it is too often acute and progressive, and from observations made both clinically and pathologically we have come to the conclusion that many cases in school children diagnosed as, or suspected of being, phthisical, are not such, but are chronic infections due to some other cause.

In support of this we shall first compare the result of the examination of the sputum from (*a*) suspected cases of phthisis in adults, and (*b*) suspected cases of phthisis in children from the age of 5 up to and including the age of 15.

During the past eighteen months ending October, 1912, the sputum of 1,824 adults has been examined in this laboratory for the tubercle bacillus. Of these, 33.7 per cent. gave a positive result. During the same period the sputum of 230 school children has been examined for tubercle bacillus, and of these 9.1 per cent. were positive. In not a single negative case among the children was a positive result obtained by a subsequent antiformin examination.

To carry the matter to a more definite state the negative sputum was in the cases of 69 suspected children inoculated into guinea-pigs. Of the 69 guinea-pigs only 2 were found tuberculous when killed at the end of one month, 30 died in from one to nineteen days of peritonitis more or less acute, and 37 were normal when killed after one month. This gives a percentage of 2.9 tuberculous.

Negative sputum from adults was inoculated in only 18 instances. Of these, 2 guinea-pigs were found tuberculous, 7 died of peritonitis, and 9 were normal—a percentage of 11 tuberculous.

Results of Examination and Inoculation: Adults and Children.

(*a*) Adults:		
	Sputum examined and found positive ...	33.7 per cent.
	Guinea-pigs inoculated and found positive	11.0 ,,
(*b*) Children:		
	Sputum examined and found positive ...	9.1 ,,
	Guinea-pigs inoculated and found positive	2.9 ,,

There is a remarkably close resemblance in the proportion of the two sets of figures, the ratio in each case being nearly 3 to 1; and though the number of adult inoculations is small, the fact of the ratio between the microscopical and biological results being practically the same in adults and children may be accepted as far as it goes. That is to say, we may take the figures for the microscopic

examination of the sputa as being a fair approximation and index of the incidence of phthisis in adults and children. This is not to assume that the disease is over three times (33.9 to 9.1) more frequent in adults than in children, but we are entitled to say that tuberculosis of the lungs is less common in children than in adults, and less common, too, than is generally supposed.

In view of this conclusion, which is quite reasonable in the circumstances, the question is: What is the nature of these cases of suspected phthisis in children? The probable explanation is that they are chronic catarrhal conditions associated sometimes with varying degrees of bronchiectasis and are the chronic residue of pneumonic or broncho-pneumonic inflammations which in turn have followed measles or whooping-cough, or indeed may have arisen alone. The cough, the types of breath sounds, the râles, and the sputum, can all be explained by such a condition, and where dullness is elicited it is no doubt due to pulmonary fibrosis. Dr. Theodore Fisher has already, in this JOURNAL, called attention to the existence of peri-bronchitis and bronchiectasis in children, and has emphasized the need of caution before diagnosing phthisis in such cases.

Ages of 22 Positive Cases.

Age 15	...	...	7 cases	Age 11	...	...	3 cases
,, 14	...	...	3 ,,	,, 10	...	...	2 ,,
,, 13	...	...	2 ,,	,, 9	...	...	1 ,,
,, 12	...	...	4 ,,	,, 8 (and under)			0 ,,
				Total ...		...	22 cases.

The fact that a positive result was obtained in only one case below the age of 10 and in twelve between that age and 15 suggests an increasing liability to phthisis as the age of childhood is left behind.

Out of 22 cases we have been able to trace 17. Of these in eighteen months 7 are dead, 6 are "worse" or "past relief," and 4 are indefinite, which supports our belief that phthisis in children is more apt to be acute and progressive than slow and benign. It must not be forgotten, however, that many of these suspected cases may give a tuberculin reaction through being infected with tubercle elsewhere, whence an invasion may take place later into the already damaged lungs, but this does not invalidate our contention that many cases of phthisis in children are falsely so called.

The next point to be considered is the fate of the inoculated guinea-pigs. The inoculation of the sputum from both adults and children resulted in a large percentage in peritonitis—namely, 38.8 per cent. from adults and 43.5 per cent. from children. In the negative sputa of children the pneumococcus was found in large numbers and was by far the most abundant organism present. The peritonitis in all the guinea-pigs inoculated with the children's sputa was, with one exception, pneumococcal. The organism was present in abundance, and was isolated from the peritoneal exudate.

The fact that from adults and from children about 40 per cent. of the inoculated animals died of a peritonitis which was pneumococcal in almost all the children's cases and in the majority of adults' cases—such a fact suggests that the pneumococcus has a special significance and virulence in the causation of these cases of suspected phthisis. Speaking with regard to children it seems to us that such a lesion—namely, a chronic infection by the pneumococcus—is the true explanation of many of those cases of suspected phthisis which live on from year to year, no doubt in a more or less debile condition, but able to go about and put in an irregular attendance at school.

CONCLUSIONS.

1. Phthisis is not so common in children as certain recent reports would appear to imply.

2. Many cases of "phthisis" or "suspected phthisis" in children are really chronic pneumococcal infections of the lungs inducing bronchial and peribronchial lesions.

3. These pneumococcal cases in children form a large percentage of the cases cured or improved in open-air schools.

4. It is extremely likely that such cases in children are treated at tuberculin dispensaries as phthisis in which the tubercle bacilli are not found in the sputum.

5. These pneumococcal infections tend to be chronic and non-fatal, though there is always the liability to tuberculous infection.

THE TREATMENT OF ADENOIDS AND ENLARGED TONSILS WITHOUT OPERATION.

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CONSIDERING the efficacy of *x* rays in reducing the size of chronically inflamed lymphatic glands it is surprising that hitherto there has been no attempt, as far as I am aware, to treat enlarged tonsils and adenoids by this method.

As the present surgical treatment is open to several objections, an investigation of the possibilities of the Roentgen rays was undertaken with a view to providing at least an alternative method which would be suitable in a large percentage of the cases now operated on. From inquiries made it would appear that the average number of hospital operations in London for this condition alone is not less than 500 a week.

Observations were at first confined to cases that had chronically inflamed lymphatic glands situated near the angle of the lower jaw and having enlarged tonsils at the same time. The treatment of the glands involved the radiation of the tonsils, so that there was no question of experimenting on patients until justification was obtained to proceed further.

All these cases showed a corresponding diminution in the size of both glands and tonsils. Patients were then selected in whom the condition of "tonsils and adenoids" was well advanced, and characteristic symptoms were marked—that is, mouth breathing, snoring, deafness, discharge from the ear, etc.

Each of the following examples is taken to show some special feature, with a view to the summation of the results to be obtained by radiation.

CASE I.

F. B., aged 10, had the typical adenoid type of face, mouth open, lower jaw dropped. Adenoids were made out by digital examination to be an exceptionally large mass, and the tonsils projected well beyond the pillars of the fauces. There was a discharge from the left ear. It was stated that the child suffered from colds and earache; that she could not hear properly, and that she snored at night.

As the result of the first dose it was reported that she could hear better and snored less, but the discharge from the ear continued.

After the second dose, discharge less and snoring less.

After the third, discharge from the ear stopped, snoring stopped, but child breathes heavily when asleep. Hearing much better. Mouth still open, but much less than at first.

Progressive changes were to be noted at each successive visit, the tonsils became smaller, but, though the adenoid tissue round the pharynx had shrunk sufficiently to give a good air passage, the change in actual size was not as much in this case as had been hoped for. This result was probably due to the prolonged neglect, the influence of which will be commented on in connexion with another patient.

The cases of two brothers are the subjects of the next examples, as their symptoms were much the same, differing only in degree.

CASE II.

James N., aged 11, had tonsils projecting beyond the pillars of the fauces, and adenoids could be felt as scattered masses. The father stated that the boy was constantly getting colds and was becoming increasingly deafer, so much so that arrangements had already been made to send the child to a school for deaf children, but the parents decided to seek further advice before giving their consent to this proposal. The boy snored when asleep and kept his mouth open.

Very little change was noted at first, but an improvement could be observed about a week after the second dose. A letter of inquiry to the schoolmaster elicited a reply to the effect that both boys had improved considerably lately, James, if anything, more than Joseph (the other brother).

Six weeks after the initial treatment the boy showed marked improvement, though he was still snoring a little and breathing through his mouth.

After seven weeks the snoring had stopped and the mouth was kept shut. A further letter from the schoolmaster stated:

"Joseph—Improved. Can hear from the back of the class.

"James—Improved. Can only hear when sitting right in front of class."

Although the boy's hearing was far from perfect, as shown by the above report, his condition was immeasurably better than when it was considered advisable to send him to a school for the deaf.

On examination at this time the tonsils were found to be well within the pillars of the fauces, but they had not quite

regained their normal size. The adenoids could be made out, and the mass was smaller. How much so it was, however, difficult to determine.

CASE III.

Joseph N., aged 13. Tonsils and adenoids in apparently much the same state as the previous case, though his symptoms were not so marked. Snored at night, and breathed through his mouth. Hearing defective.

The boy showed progressive improvement throughout the course of the treatment. His snoring and mouth breathing ceased a week or so earlier than in his brother's case, and the schoolmaster reported as above at the end of seven weeks that the boy could hear when at the back of the class.

The tonsils became almost normal in size, and the whole aspect of the boy changed for the better, becoming brighter, and a dull, listless appearance that was evident when he first came for treatment quite disappeared.

CASE IV.

Alexander H., aged 8. Tonsils and adenoids causing mouth breathing, snoring, and defective hearing.

A fortnight after the first dose it was reported that the child did not snore so much. After the third dose the child kept its mouth shut when sleeping, but was still snoring. The child's teacher had remarked that his hearing had improved.

Seen a fortnight after the fourth dose, the mother stated that the boy then slept with his mouth shut and did not snore. On examination, the tonsils were normal in size and he could breathe freely through his nose.

As regards the diminution in the size of the tonsils this was the best case that was under observation, and the cure was brought about by only four applications of the rays.

In the following instance the enlargement was probably purely adenoid in nature, the amount of fibrosis being very limited:

CASE V.

Florence P., aged 22. Tonsils meet in the midline. Adenoids a large mass. The patient states she has had enlarged tonsils ever since she can remember. She cannot breathe through her nose, and when she wishes to clear her nose she can only do one nostril at a time, and even this with great difficulty. She is constantly getting sore throats and has had quinsy three times lately.

Five weeks after the first dose and two weeks after the second dose she stated she could breathe through her nose with her mouth shut for the first time and her throat did not feel sore. The tonsils, however, were still enormously enlarged, but not as big as they were when she first came.

Successive treatments though giving considerable relief to her symptoms did not cause much apparent effect as regards the size of the tonsils, although they looked much healthier and less inflamed.

In this case it is certain that the bulk of the hyperplasia of the tonsil was due to fibrous and not to adenoid tissue, so that it could hardly be expected that the *x* rays could exert much influence under such circumstances at once, but as soon as the septic state of the tonsil had been remedied the fibrous tissue would gradually become more compact, and the tonsil would shrink.

Such a case as this is altogether exceptional, but is used as a contrast with the next case—a child of 3.

CASE VI.

H. R., aged 3. Tonsils enlarged. Adenoids could be felt. The child had the adenoid expression, and kept her mouth open. She snored at night. Her mother had her examined because of constantly recurring colds and earache. The cervical glands were palpable on both sides. A third of a Sabouraud dose was given on each side, the irradiating area including the upper cervical glands, the mastoid process, and the nasal mucous membrane.

Six weeks after the mother wrote:—"I am glad to say that H. has been much better since she had the treatment; there have been no complaints of pain in the ear, and the glands seem quite normal. She has not snored so much at night, but it is still very bad. Do you think it would be better for her to have another dose of the rays?"

On examining the child the tonsils were found to be much smaller and the adenoids were less. The adenoid expression was scarcely perceptible. The glands in the neck could not be felt. The mother said that there had been no more colds since the treatment.

Another third Sabouraud was then given on each side, and about a fortnight later the mother stated that there was no further snoring.

The next example has been selected because, although both tonsils were equally swollen when the child was first seen, one tonsil rapidly regained a normal size, and the other yielded very gradually and incompletely to treatment.

CASE VII.

C. O., aged 8, was sent to the hospital for *x*-ray treatment of a unilateral mass of tuberculous cervical glands extending from the mastoid process to half the length of the sterno-mastoid. Beyond noting that both tonsils were enlarged, no observation of adenoid symptoms was made when the boy first came. As treatment proceeded the tonsil on the side of the tuberculous glands yielded very gradually to the treatment, whereas the other disappeared after some four or five radiations.

This boy's history of glands in the neck extended back for over two years, so that probably the refractory tonsil had been infected with tubercle for some considerable time, and the fibrosis had interfered with the rapid reaction which characterized the other tonsil.

Other cases of tonsils and adenoids have shown similar changes as the result of treatment. In no case was there any failure of reaction to the rays. Some required only two or three doses to give relief to their symptoms. The longer the condition had existed the longer the treatment required to be; from which the inference can be drawn that tonsils and adenoids of long standing are to a large extent composed of fibrous tissue formed by the prolonged inflammation.

CONCLUSIONS.

1. Roentgen rays have a stimulating effect on chronically inflamed adenoid tissue, and enable it to resume its healthy condition.

2. The tonsils do not entirely regain their normal size except in favourable cases, the diminution in size being dependent on the time the organ has been inflamed or on the amount of fibrous tissue that has been formed.

3. The decrease in size is sufficient to dissipate all obstructive symptoms.

4. Conditions dependent on the septic state of the tonsils and adenoids are relieved.

Regarding the merits and demerits of the surgical and radiological methods the following points may be raised:

It cannot be right to remove tissues that have a definite function, and though this procedure has been necessary in the past it is surely better to restore such tissues to a healthy condition rather than remove them. A small proportion of tonsils owe their enlargement to tubercle, and in these cases it is a matter of risk to resort to surgery on account of the possible dissemination of the disease.

The radiological method certainly takes longer, but against this there is no shock to the child and no convalescent period; and as for the sum total of inconvenience the advantage lies with the *x* rays. The parts affected by operation do not comprise the whole of the inflamed area, whereas by radiation all the pharyngeal lymphoid tissue can be subjected to the influence of the *x* rays. Recurrences are not at all uncommon after the use of the guillotine, necessitating another operation.

TECHNIQUE.

The same method was not adhered to during the investigation but in all cases a hard tube was used, the rays were filtered and not more than a half Sabouraud dose was allowed to pass through any given area of skin. The rays were applied laterally, the anticathode of the tube being above and behind the angle of the jaw, so that the rays encountered the minimum resistance in reaching the tonsil; the head was so placed that the rays swept in front of the vertebral column and the posterior pharyngeal wall. After a dose had been given on one side the head was turned and a similar treatment given on the other side.

All measurement was done with a pastille lying on the skin. With restless children it is useless to adopt Sabouraud's plan of having the pastille halfway between the anticathode and the irradiated area.

The tube was placed at a greater distance from the patient than is usual in order to obtain approximate equality of intensity of radiation throughout the pharynx.

The interval between the doses and the amount of the doses was varied, but under no circumstances was a larger dose than a half Sabouraud given.

THE effect of radium in the treatment of cancer is to be made the subject of a special investigation under the direction of Dr. William Duane, at the Harvard Medical School. As soon as possible a special building is to be constructed adjoining the medical school expressly for the purpose of the research, which is to be carried out under the supervision of the Cancer Commission of Harvard, of which Dr. E. E. Tyzzer is director.

THE CAUSE OF ENLARGED TONSILS AND ADENOIDS IN CHILDREN AND THEIR TREATMENT WITH LYMPHATIC GLAND EXTRACT.

(PRELIMINARY REPORT.)

BY HUGH T. ASHBY, B.A., M.D.CANTAB., M.R.C.P.LOND.,

PHYSICIAN TO THE MANCHESTER CHILDREN'S HOSPITAL; ASSISTANT PHYSICIAN TO THE SALFORD ROYAL HOSPITAL.

MANY theories have been put forward as to the cause of enlarged tonsils and adenoids, but I think it is possible to rule all of them out conclusively. For this reason I am advancing a new theory, which may have some connexion with their enlargement.

By analysing some 3,000 cases in children suffering from enlarged tonsils and adenoids, it became apparent that by far the commonest ages for the children to suffer from enlarged tonsils and adenoids is from 2 to 5 years, but that many infants, even from birth, have enlarged adenoid growths in the naso-pharynx.

To find out at what age the adenoid tissue is developed I have obtained a number of fetuses of different ages and dissected away the posterior wall of their naso-pharynx, where the adenoids subsequently develop. The tissue thus obtained has been examined microscopically, and I have been able to find that adenoid tissue was present in every fetus after the age of 6 months. This being so, I think we can say that every child is born with adenoid tissue at the back of the naso-pharynx, but that it grows for some reason in some children more than in others.

The mere presence of adenoids does not constitute a disease, and they only become pathological when they hypertrophy and cause trouble. In infancy and childhood the lymphatic structures are at their maximum exactly at the time when enlarged tonsils and adenoids are commonest, and it is one of the functions of the lymphatic tissue to form the lymphocytes. Now it is a peculiar fact that children with enlarged tonsils and adenoids rather have a diminution of lymphocytes in the blood, and there is also an increase in the total number of leucocytes. For this reason it looks as though the enlargement of the tonsils and adenoids were an attempt on the part of Nature to supply the deficiency in the other lymphoid tissue of the body. At the age when enlarged tonsils and adenoids are commonest (2 to 5 years) the lymphocytes are normally beginning to decrease from the high percentage found in infants to the adult standard, and again, the thymus is also decreasing in size. I think these two facts support the view that the adenoids and tonsils are an attempt to augment the lymphoid tissue of the body. It is also a common fact that when the enlarged tonsils and adenoids are removed carefully by a competent surgeon before the age of about 5 years they are very liable to recur, so that Nature, as it were, makes a second attempt to raise the amount of lymphoid tissue, or at least supply the body with some secretion from the lymphoid tissue, which it needs at this age.

If we could supply these children with lymphoid tissue artificially, there would be no need for the enlarged tonsils and adenoids, and in consequence they would go down, and it is on these lines that I have been working. Messrs. Burroughs and Wellcome have made me some lymphatic gland extract, exactly on the same lines as they make thyroid extract. Up to the present I have treated about 30 cases of enlarged tonsils and adenoids with this lymphatic gland extract, gr. v, three times a day. No bad effects have been observed, and nearly all the children have improved in a very satisfactory way; the snoring and noises in breathing have disappeared, and the tonsils have diminished in size.

This being so, I think it is well worth while pursuing the treatment in a larger number of cases. In many instances of enlargement of the thyroid gland at puberty in girls, if thyroid extract be given the thyroid gland diminishes in size, showing that the gland enlarged to make up for some deficiency in its secretion, and that when the deficiency was made up artificially the gland went back to its normal size.

IODINE AS AN ANTISEPTIC IN TROPICAL COUNTRIES.

BY J. C. RIDGWAY, B.A., M.D.DUBL.,

MEDICAL OFFICER, NIMULE, NILE PROVINCE, UGANDA.

IN an article on strangulated epigastric hernia published in the BRITISH MEDICAL JOURNAL in December, 1910, I mentioned the beneficial use of a 2 per cent. solution of the tincture of iodine in skin preparation, as a preliminary to operation.

The following may be of interest, showing as it does the excellent results obtained by its use where preparatory antiseptic measures could not be adopted, and where the existing conditions were by no means favourable from an aseptic point of view.

Reclus, in *La presse médicale*, mentions the excellent results he obtained by its application in compound fractures, and quotes cases to substantiate his statement.

1. Early one morning a Bunyoro native came to my hut at Nimule to be treated for a crocodile bite. He had been down to the Nile close by to cut grass for his employer, an Arab trader. In stooping to do so, at the water's edge his right forearm was seized by a crocodile, but fortunately he was able to catch hold of a small tree with his left hand, and thus save himself from being immediately dragged under water. His call for help brought another native to his assistance, and he, by repeatedly belabouring the animal with a stout stick, succeeded in making the crocodile let go, and retire under water.

It was seen that he had sustained a compound fracture of both bones of the forearm in their middle third. The upper ends were protruding through the wound on the flexor side, the superficial muscles being extensively torn, but on the extensor side, beyond the skin and fascia being lacerated by teeth marks, the muscles escaped practically untouched. Embedded in the wound were small pieces of grass. From the nature of the wound I gathered that the forearm was seized by the front teeth of the crocodile, the hand, wrist, and lower third of the forearm being at the time inside the animal's mouth.

The wound and adjacent skin was thoroughly syringed, and washed with a 2 per cent. solution of iodine for about fifteen minutes. I then reduced the fracture and stitched up the wound, dressing it with plain sterilized lint and applying splints. The arm was bandaged to the side, and the forearm fixed across the chest, as it was impossible to get him to remain in a recumbent position. The wound was again dressed with the iodine solution in four days' time, and was to my satisfaction a healthy one, the same procedure of bandaging being carried out. The limb was left in this position until the twelfth day, when the stitches were removed. On examination of the forearm it was then found that union had taken place between the approximated ends. The same procedure as before was adopted in fixing the limb.

On the eighteenth day I again dressed him, and gave instructions to come to me again in five days.

On the twenty-fifth day, as he had not put in an appearance, my native servants were sent to look for him, and later brought him to me. He had removed the splints, but had applied the bandages over the lint covering the wound, which was then quite healed.

I again saw him on the thirty-seventh day. The radius and ulna had then completely united, he could grip firmly with his right hand, and was able to extend, pronate, and supinate the injured forearm, but had a limited degree of flexion.

Three months later he came to me complaining of symptoms resembling sleeping sickness, which unfortunately proved to be true.

2. On a punitive expedition which I accompanied as medical officer into the hinterland of the Nile against some hostile tribes, I was called upon to treat over a hundred cases, comprising gunshot, spear, arrow wounds, and cuts, incurred on both sides. In almost every case I treated them with a 2 per cent. solution of tincture of iodine, and was surprised at the excellent results obtained. The various injuries healed in a remarkably short space of time, and I am of opinion that the beneficial results obtained from the use of this drug compare most favourably with any of the other antiseptics now in use, and,

moreover, I venture to state that on active service of such a nature in tropical countries, it is to be preferred to other germicidal preparations.

THE BIONOMICS OF THE RAT-FLEA.

BY

C. STRICKLAND, M.A., B.C.,

TRAVELLING MEDICAL ENTOMOLOGIST IN THE FEDERATED MALAY STATES.

(From the Office of the P.M.O., Kuala Lumpur.)

HAVING been in the "backwoods" for some time past, I have only lately had my attention drawn to a paper by Nicoll in the BRITISH MEDICAL JOURNAL for October 26th on the life-history of the rat-flea (*Ceratophyllus fasciatus*, Bosc).

The work which Nicoll describes and the facts which he has elucidated are essentially similar to my own in 1910-11, which are the object of a report to the Local Government Board now in course of publication. But I disagree with certain of Nicoll's hypotheses put forward to substantiate these facts, and I would like here to give the reasons for my disagreement.

The facts are these. Fleas are found to live in a certain medium of rubbish for apparently a great length of time without food—Nicoll found for fourteen months, while mine were alive after eighteen months, when they were accidentally thrown away. This fact is of great practical importance, of course, in itself, particularly if the fleas are able to remain disease-infective for the same length of time, and the explanation of the fact may be equally important to the fact itself. Nicoll's hypothesis is that the rubbish contains a large number of larvae, which do not all undergo metamorphosis at once. Some of them pupate and imaginate after one month, some after ten months, and so on, remaining in a resting state meanwhile. In this way a constant succession of new adults is produced which take the place of the old ones, which die off in about a month's time if kept without food, the net result being that the original fleas apparently live for a great length of time.

Now, I disagree with this hypothesis for the following reasons:

1. I have taken specimens of the rubbish from time to time and looked carefully in it for larvae, or pupa-cases which should contain either resting larvae or pupae, and I have never succeeded in finding a single one. Active larvae certainly could not escape detection. Pupa-cases are more difficult to find, but not so difficult that they cannot be seen on a careful search. I have therefore concluded that the rubbish does not contain either active larvae or any resting stages of the metamorphosis. (I admit, however, that for the first month or two resting larvae could probably be found.)
2. I have carefully taken away from a quantity of rubbish all the adult fleas present (a live bait is an efficient mode of procedure for this purpose), and I have then watched the material carefully from day to day for three to four months to see if more adult fleas would appear, but with negative result. Now, if resting stages of the larvae were living in the rubbish and constantly producing a batch of new imagines, it is difficult to see why during the time observed adult fleas did not appear.
3. It is postulated that metamorphosis is most active in summer, yet our actual experience was that the adult fleas to be found in the rubbish greatly decreased during the hot months. This is hard to explain, if the resting larvae imaginate more quickly than in winter.

The conclusion which my experiments led me to was that it was the adult fleas, and not any stages in the metamorphosis, which survived for such a great length of time as eighteen months. I imagined this was possible to the adult flea, because the rubbish in which it lived was hygroscopic and non-conductive to heat, so that heat and dryness inimical to the flea's life was escaped from in its depths.

The facts which I elucidated could only (on Nicoll's hypothesis) be explained on the assumption (1) that the pupa cases which I searched for and failed to find were actually there; (2) that although for some reason or other the resting stages failed to imaginate after three to four months, they might have done so later on; (3) that the resting stages are more prolonged in summer than in winter—a conjunction of events improbable enough to make me believe that the adult flea really survives for great lengths of time without food.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF DERMATITIS ARTEFACTA.

IN December, 1911, the patient, a domestic servant, aged 42, was admitted to a cottage hospital for convalescence from some skin trouble. The lesions on admission were merely several reddened patches fast clearing up.

In July, 1912, she returned for treatment in the initial stages of an attack. The lesions, which were distributed fairly generally all over the body, would start with painful erythematous patches followed shortly afterwards by the formation of little blebs. On several occasions there was vomiting and distaste for food, so that I wondered whether an intestinal toxin was the causal factor. This attack lasted one month.

In January, 1913, I received a letter from the patient, saying the trouble had recurred and asking to be readmitted. The lesions then were much larger and coarser, chiefly on the right side of the neck near the angle of the jaw and on the right upper arm (flexor surface). The patch on the neck was some four to five square inches in extent. Furthermore, reddened patches would occur, which were not always followed by blebs. I very soon doubted my original diagnosis, but there was nothing obviously artefact about the shape of the lesions. One day I remarked to her that it was curious how on this occasion all the patches occurred on the right side. Two days later a patch occurred on the left elbow with bleb formation. At the end of a month the lesions were healed, leaving a little pigmentation, and the patient looked out for and obtained a situation. As it was near London, I advised her to see Dr. Sequeira at the London Hospital if there should be any return of the trouble.

A fortnight later I had a letter from Dr. Sequeira saying that the patient had been to see him, and that "the eruption as then seen was undoubtedly artefact." One spot had such a curious shape that he felt at once it was self-produced. "Its boundaries were all straight lines and sharp angles." There was a faintly acid reaction to litmus. The patient then wrote to me that she had been compelled to give up her situation owing to recurrence of the trouble, and asked me to sign a sick-pay certificate. I refused to sign without seeing her, and she returned to the cottage hospital. A glance at the lesions was sufficient to make me confident that the patches were artefact. I tested one of them with litmus and got a faintly acid reaction, but when, as a control, I tested normal skin I got a much more acid reaction. This proved absence of caustic as an agent, and probably acid too. I accused the patient point-blank of practising deception. She was obviously taken aback, but soon met the suggestion with repeated denials and later with tears. In the pocket of her other dress a screw of paper containing yellow powder was found, but as I had told the searcher to look out for some fluid no notice had been taken of it and no sample obtained.

Next day I asked the patient privately to turn out her pockets, telling her that she had every right to refuse. She was then wearing the dress in the pocket of which the screw of paper with the yellow powder was found. She had no objection, and the pockets contained a few postage stamps and an empty purse. I rather expected this; it did not enable me to know what the powder was, but I felt tolerably certain that it was mustard. She told me most emphatically that there had been nothing in the pocket the previous day which was not in it at the moment of turning it out, and this confirmed me in the belief that I was on the right track. Even when I confronted her with the finder of the yellow powder she still denied it. I called her attention to the penalty under Section 69 of the Insurance Act, and she eventually confessed to having used mustard. In three days the skin trouble had cleared up.

The cottage hospital is partly supported by a small fee charged to the patients (5s. to 10s.). The patient was entitled to sick pay.

The case bears out the persistence of such patients. I was fortunate in being able to get her into an institution where her belongings could be easily searched. At home or in service to have found mustard in the house would have availed little.

I could find no anaesthetic areas so common in dermatitis artefacta associated with hysteria—that is, palate, glove, or stocking anaesthesia. For a moment the acid reaction of the normal skin nonplussed me, but, as events turned out, it strengthened my hand.

I am inclined to think the last attack in July, 1912, was not artefact.

The case shows the imperative need of medical referees under the Insurance Act, who will safeguard both the doctors' interests and the friendly societies' funds.

In conclusion, I would like to thank Dr. Sequeira for his valuable help in bringing the case to a successful conclusion.

Newick. J. CHARSLEY MACKWOOD.

A CASE OF GASTRIC ULCER ASSOCIATED WITH TETANY.

SOME features of the following case seem of sufficient interest to make it worth recording.

The patient was a married woman aged 37, who for twelve years had had constant symptoms of chronic gastric ulcer. In addition, during the later five years she had had, at intervals of about six months, attacks of acute left-sided abdominal pain accompanied by vomiting, which completely prostrated her for the time being. Four years ago she had been in a hospital for five weeks, her treatment there consisting in the administration of peptonized milk in measured quantities.

I was called to see her on December 5th, 1912, during one of her attacks of pain, and strongly recommended that she should undergo an operation as soon as the attack had subsided. Consequently she entered hospital, where on December 9th a small ulcer at the cardiac end of the stomach was excised. She left hospital at the end of December feeling somewhat relieved, but the symptoms soon recurred, and in the middle of February she had another of her old attacks of acute pain, vomiting, and prostration.

She remained in the same condition until March 20th last, when I was sent for in a hurry. She had suddenly collapsed in the street, and had been carried home. When I saw her she was in a condition of extreme shock, was unable to speak, but could understand questions addressed to her. The abdomen was extremely tender and rigid, especially on the left side. The lower border of cardiac dullness was 1½ in. higher than normal, and in the left flank there was marked dullness. Both hands were in a condition of extreme tetany. Although she appeared to suffer from abdominal pain she indicated her shoulders, especially the left, as being the seat of most pain. I diagnosed gastric perforation at the cardiac end, and advised immediate operation. Mr. Basil Hughes, whom I called, took the same view, and as her condition was too grave for removal to a hospital we decided to operate in her own home.

Accordingly an incision was made one inch to the left of the middle line, and the peritoneal cavity opened. A large quantity of material resembling gruel poured out, and on examining the stomach a large indurated ulcer, about the size of a five-shilling piece, was found at the cardiac end. In its floor were two ragged openings through which the gastric contents were escaping. The gastric wall around the ulcer was soft and very oedematous. These openings were sewn up and the ulcer buried with Lembert sutures, much difficulty being experienced owing to the friability of the oedematous tissues. The procedure was then completed by posterior gastro-enterostomy. Her convalescence was rapid and uninterrupted, and the tetany, which disappeared under the anaesthetic, has never returned. She can now eat anything she fancies without the slightest inconvenience, and has quite altered in appearance, having become quite plump, with a good colour, and having lost that drawn, anxious expression of chronic pain, which formerly was hardly ever absent from her face.

The case is of further interest from the presence of the tetany described. In no other of the great number of perforated gastric ulcers seen by me has this symptom been present. In all these the perforation has been at or near the pyloric end of the stomach, and I have reason to believe that perforation at the cardiac end has been said to be associated with tetany. But whether the tetany in this particular case was of toxic or reflex origin, I am not at present prepared to say. The pain in the left shoulder is also of interest, because I have frequently noticed that in cases of perforation at the pyloric end (that is, to the right of the hepatic ligament) the pain is referred to the right shoulder.

Bradford. H. SUTHERLAND METCALFE, B.A., M.D.Dub.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

SOMERSET HOSPITAL, CAPETOWN.

TWO CASES OF FRACTURED PELVIS.

(By HOWARD W. REYNOLDS, M.B., B.Sc.Lond., Radiographer to the Hospital.)

THE two following cases present certain points of interest, among them being the absence of grave symptoms despite the extent of injury revealed by radiography. The first case is that of a patient sent in as the subject probably of fractured pelvis. The injury was caused by a horse falling on him about a month previously and was thus due to direct violence. He was able to walk and had not much pain.

Fig. 1.—A, Sacrum. B, Torn piece of ilium. C, Rest of ilium. D, Pubis.

A radiograph was taken of which Fig. 1 is a pen and ink picture copied from the 12 × 10 negative; B is the posterior portion of the left ilium which had been torn off, but was still in articulation with the sacrum. The rest of the innominate bone is displaced upwards, the displacement at the pubic symphysis being very marked. One would have thought that the membranous urethra must have been damaged, but the patient has had no urinary symptoms, and indeed, except for a little lameness, is quite well, no reduction having been attempted.

The second case was sent in as one of dislocation at the hip-joint, but the surgeon in charge of the case thought otherwise, though he could not make out what the actual condition was.

The injury was caused by a fall from a trolley on the railway, the tibia and fibula being fractured at the same time. A radiograph was taken, and of this Fig. 2 is a sketch.

Fig. 2.—A, Outer fragment of ilium. B, Inner fragment of ilium. C, Ischium. D, Pubis. E, Wedge.

The iliac portion appears to have been split by a wedge-shaped portion of the lower fragment, so that the inner portion of the ilium and the ischio-pubic portion are

displaced inwards, carrying the femur with them. The head of the bone has left the upper part of the acetabulum, but still articulates with the lower part. Thus the original diagnosis was in part correct, though the fracture was overlooked. The patient was able to walk on crutches.

My thanks are due to the surgeons in charge of the patients for permission to publish these notes.

Reports of Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on May 21st, Mr. J. M. COTTERILL, President, in the chair, the following were among the exhibits: Dr. DAWSON TURNER, two cases illustrating *Radium treatment*, one of a recurrent cancer in a woman (after surgical removal of a medullary cancer in the axilla), which disappeared after six weeks' treatment; the other a port-wine stain and keloid, which also disappeared under treatment, carbonic acid snow and nitric acid having been previously tried without much benefit. Dr. MELVILLE DUNLOP: *Syphilitic synovitis* of both knees in a boy aged 8, who showed no signs of congenital syphilis until a development of interstitial keratitis a year ago; under salvarsan the condition was showing gradual improvement. Dr. R. A. FLEMING: (1) *Spastic paraplegia* of two years' duration in a woman, aged 26, who had had rachitic deformity of the pelvis and legs since childhood. (2) A sailor, aged 24, with *Congenital heart disease*, and marked clubbing of fingers and toes, associated with acquired bronchiectases of nine years' duration. Dr. J. EASON: Two cases of *Pancreatic infantilism*, characterized by frequent large unformed motions containing a high percentage of fat; the first case, a boy aged 15 years, had shown remarkable improvement after a month's treatment with a pancreatic preparation; the second case, a lad aged 20 years, was of longer duration, and showed a more marked retardation of development. Professor CAIRD: (1) A case of *Intestinal obstruction*, first dealt with by colostomy, and later by resection of a carcinoma of the pelvic colon. A further operation was required to close the artificial anus. Nearly two years later a ventral hernia developed at its site, and it was treated by operation. (2) A case of *Pyloric carcinoma* fixed under cover of the liver, and not palpable even under anaesthesia. The symptoms, of three and a half months' duration, were pain, vomiting, and rapid emaciation. On operation the tumour was found to be mobile and removable by pyloro-gastrectomy. Mr. C. W. CATHCART: A case of *Epithelioma of the cheek in a miner*, occurring on the site of an injury by a fragment of stone seven weeks before. An ulcer formed here a week after, and had enlarged steadily. Mr. DAVID WALLACE: (1) A case of partial *Oesophagectomy*, in a woman aged 47, for an *Epithelioma* of the upper end of the oesophagus; the symptoms of sore throat and dysphagia had lasted a year. (2) A case of *Ileo-caecal stricture* in a man aged 43, who had suffered from pain and constipation for six weeks. A hard palpable mobile tumour was found in this region, and on operation a tumour of the caecum, with hard nodules in the mesocolon and ileum and hard enlarged glands, was found. The provisional diagnosis was carcinoma, and a lateral anastomosis of the ileum to the transverse colon was performed. Microscopical examination of a nodule showed the condition to be typical tuberculosis. (3) A case of plating of the humerus for ununited fracture of three months' duration. Mr. MILES: (1) *Gummatous meningitis* in the region of the pons in a man aged 40. His symptoms were those of cerebral tumour, headache, vomiting, blindness of the right eye and defective vision in the left, nerve deafness, and facial paralysis on the right side. The Wassermann reaction was positive. Under potassium iodide and mercury headache and vomiting had ceased, but there had been no improvement in vision. (2) A man, aged 53, eleven months after *Occipital decompression* for tumour of the cerebello-pontine angle. His symptoms before operation had been unsteady gait, severe occipital headache, impairment of vision, deafness of right ear and defective hearing in the left, defective sensation to touch, etc. The tumour was irremovable, but since the decompression operation there had been great improvement. Headache and vomiting had gone, and the patient could walk out daily and could read the paper. Mr. W. J. STUART: Three children after operation for *Tuberculosis of the vertebrae*. The object was to cause immobilization by ankylosing diseased vertebrae to one another and to healthy vertebrae above and below, and consisted in splitting the spinous processes and laminae subperiosteally and bending them down in contact with the adjacent bones. It was claimed that the children could walk without support in three to four months. Mr. FRASER showed several cases illustrative of the *Elastic ligature treatment of umbilical hernia* in children, a method which he regarded as being both shorter and more effective than the treatment by pad and pressure. Mr. SCOT SKIRVING: A case of very acute infective *Synovitis in the knee-joint* in a youth, aged 16½ years, resulting in a mobile joint after operation and subsequent massage.

EDINBURGH OBSTETRICAL SOCIETY.

AT a meeting on May 14th, Dr. HAIG FERGUSON, President, in the chair, Professor ROBERT JARDINE (Glasgow) showed a uterus from a woman, who died during labour, in which there was a large *Retraction ring* that had obstructed the head. The lower uterine segment had ruptured during an attempt at version, and the woman died shortly after admission to hospital. Such obstructing rings might be in front of or behind the presenting part. Of the former condition he described two cases. In the first, a woman whose true conjugate was 3¼ in., there had been four dead children before; only the last was at full time. She was admitted to hospital to allow of induction being performed if necessary. As the head could be forced into the pelvis right up to the time when the birth was expected, no interference was necessary. After labour had been in progress for some time and the cervix was fully dilated, with the membranes bulging into the vagina, the head still remained mobile above the brim. In front of it was a distinct ledge running round about one-half of the cavity. This was the retraction ring, and obviously prevented descent. Four hours after a full dose of morphine there was no relaxation of the ring, so Caesarean section was performed. Mother and child did well. In the second case, under Professor M. Cameron's care, the membranes were ruptured, the os was fully open, but the head was held back by the ring. Caesarean section was again performed with success. In cases of the kind under consideration attempts at manual dilatation were futile, incision of the ring from below was certain to be followed by an extending rupture of the uterus, and full doses of morphine never produced any benefit. Hence he would always advise Caesarean section. Where the retraction ring caused obstruction behind the presenting part, it formed after rupture of the membranes before there was much dilatation, or even before labour was begun. Of this condition he recorded two cases. In the first, a multipara with a roomy pelvis, the previous labours had been easy. The membranes ruptured at the onset of labour, dilatation increased; but many hours afterwards there was no progress. The head was high up in the first position, and apparently in no way obstructed. Milne-Murray forceps were applied, but they slipped, and on introducing the hand the attendant recognized the retraction ring tightly grasping the child's neck. The speaker, on examining the patient in consultation, found the ring almost complete, and as manual dilatation was impossible and the child was dead, and as the forceps slipped on being again applied, the head was perforated to give a grip to the combined extraction instrument. Delivery was then obtained. The placenta, however, being held back by the ring, had to be delivered manually. The second case was a uniparous woman with a roomy pelvis. The membranes ruptured early in labour, but as no progress was made after many hours, the forceps were applied and the head drawn down as far as the vulva. It was now evident that the body was obstructed, and the hand passed into the pelvis recognized that the neck was grasped all round by the retraction ring. Manual dilatation was impossible. As the child was dead the right clavicle was torn through with the crotchet and the right arm removed. Even then no impression was made on the body till the other clavicle was broken. The

author stated that no explanation could yet be given of these cases. As regards treatment, opiates were of no benefit. Manual dilatation was impossible, so with a living child forceps should be tried. If this failed Caesarean section was indicated.

The Lower Uterine Segment.

Dr. A. H. FREELAND BARBOUR outlined the position which this subject occupies at the present day. Schroeder first showed that the retraction ring develops at a higher level than the os internum, and that it was present in normal labour. This was confirmed by the specimen described by the author and Professor Webster (1890). In Bumm and Blumreich's section (1907) there is a retraction ring at the os internum, but this specimen was abnormal in that the cervix was extremely thinned out posteriorly. The author's conclusions were as follows: (1) A retraction ring is not present in every specimen; (2) when present it does not always develop at the same point. Sometimes it is as low as the os internum, but more frequently it is above this level. Dr. BERRY HART, in discussing the papers, referred to a case seen by him, in which the labour was obstructed by a retraction ring firmly grasping the fetal neck. As regards remedies, amyl nitrite was said to be useful. Dr. OLIPHANT NICHOLSON thought "contraction ring" a better term than "retraction ring." The PRESIDENT said that the danger associated with amyl nitrite was uterine atony. He had seen the retraction ring cause obstructed labour in a breech case.

MEDICAL SOCIETY OF LONDON.

AT a meeting on May 19th, Sir W. WATSON CHEYNE, President, in the chair, Mr. JOHN HOWELL (Cheltenham), in introducing a discussion on the *Functions of the peritoneum*, said that the chief of them was that of a "perienteric trap" for the reception and annihilation of micro-organisms, which constantly and normally — that is, without producing symptoms—permeated the intestinal wall. It was part of the duty of certain organs intimately connected with the peritoneal cavity, of which the liver, stomach, and intestines were the chief, to excrete the toxic products formed therein, including, in times of stress, the bacteria themselves, with the minimum risk of contamination to the remainder and more important parts of the body. In illustration of his theory he dealt with the evolution of the coelomic cavity, and the part which it probably played in certain of the lower animals. He brought forward in support of his view many clinical observations. In his opinion, the symptoms of peritonitis, intestinal obstruction, and many other conditions were best explained by it. Dr. A. E. RUSSELL expressed the opinion that if organisms did constantly and normally permeate the intestinal wall, such process should be susceptible of demonstration in histological preparations. He briefly adverted to other functions of the peritoneum, and to the importance of general toxaemia in peritoneal injections. Valuable as the peritoneum was for the purpose of allowing free contractions and movements of the intestinal coils, the presence of a large surface with innumerable nooks and crannies carried with it grave disadvantage in the presence of any bacterial invasion. He was of opinion that Mr. Howell's views required substantiation by bacteriological evidence. Mr. PETER DANIEL said that he regarded the mucous membrane as the first line of defence against invasion by organisms from the intestinal tract. The peritoneum, however, was capable of affording protection, even when no mucosa was present, as was shown by two cases he quoted. He believed that the portal vein was being constantly infected, and that most liver disease was due to this infection. He regarded no disease as a purely local condition. The peritoneum did not protect the whole body, but only dealt with its own infections. If the bowel became damaged, it was easy to demonstrate its permeation by organisms. Mr. PERCY SARGENT said that the peritoneal cavity was a potential cavity rather than an actual one. There was no proof that a large number of leucocytes were present there in conditions of health. Dr. Dudgeon and he, in the course of their investigations, had never found organisms in a normal peritoneal cavity, and he asked whether anyone else had. Many of the organisms concerned were non-motile, and could only be carried by external physical or mechanical agencies. They could not enter the peritoneal cavity by their own efforts. He thought that the fluid of an ovarian cyst was infected from the blood stream. It must be remembered that organisms reached the peritoneal cavity by other ways than through the bowel wall, the blood stream being an important channel. Mr. HOWELL replied.

UNITED SERVICES MEDICAL SOCIETY.

AT a meeting on May 21st, Fleet Surgeon BASSETT-SMITH, President, in the chair, Major E. B. WAGGETT, R.A.M.C.T.F., in a paper on the *Medical problem of the mobilized Territorial Force*, laid stress on the lack of experience of the average Territorial medical officer in dealing with the sanitary problems of armies in the field. A fortnight in camp afforded no index of the success or otherwise of the sanitary measures taken, as it was unusual for epidemic disease to make its appearance for at least six weeks after mobilization. In regard to the safety or danger of billets as accommodation for large bodies of troops, England was a terra incognita, no large bodies of troops having remained in billets, or indeed under canvas, in this country for any length of time. If the experiment were made it would fall to the lot of the Territorial Force to make it, and the responsibility resting on the authorities to provide the force with an efficient sanitary service was very great. Salisbury Plain was sacred, in regard to disturbing the surface of the ground, so the sanitary authorities of the troops were deprived of opportunities of carrying out in peace the duties that would fall to them in war. Small-pox would be very likely to give trouble in the absence of efficient revaccination, and enteric fever would be rife under the conditions ensuing on mobilization of the Territorial Force. Excellent as were the sanitary companies they were insufficiently numerous to cope with the vast problems involved. Matters would be improved somewhat if Territorial medical officers were permitted to attend army manœuvres as supernumeraries, thus obtaining an insight into the methods of dealing with large bodies of troops under service conditions, and if there were brought into existence a special class of officer who, on qualifying, would be attached for one year to the regulars, and thus bring to their service with the Territorials the knowledge derived from intimate association for a considerable time with regular troops, both in barracks and on manœuvres.

A MEETING of an organization committee appointed by the Clinical Congress of Surgeons of North America was held at Washington on May 5th, with Dr. Edward Martin of Philadelphia in the chair, to discuss the formation of an American College of Surgeons. The object aimed at is the standardization of surgery in the United States. Five hundred representative surgeons from all parts of the North American Continent had agreed to become founders of the college, and of this number fully 300 were present at the meeting in Washington. They were unanimously in favour of the project. The proposal is that a minimum standard of requirement should be set up for any legally qualified doctor who wishes independently to undertake operations in general surgery or any of its special branches. An endeavour will be made to obtain the legalization, under national, colonial, State, or provincial laws, of a distinct surgical degree that will entitle those possessing the required qualifications to operate. The medical colleges are to be urged to confer the degree of surgeon on such graduates as have, in addition to the medical course, gone through the necessary apprenticeship in surgical hospitals, operative laboratories, and actual operative surgery. It is further urged that men who have gained the title of "Surgeon" in this way should be authorized to use it in medical directories and elsewhere by appending the initials F.A.C.S. to their names. The following officers were elected: President, Dr. J. M. T. Finney, Baltimore, Md.; Vice-President, Dr. Rudolph Matas, New Orleans, La.; General Secretary, Dr. Franklin H. Martin, Chicago, Ill.; Treasurer, Dr. A. J. Ochsner, Chicago, Ill. The headquarters of the college will be in Chicago, where the first meeting will be held in November. It is expected that the President of the Royal College of Surgeons of England will be the guest of honour on the occasion.

Reviews.

ANOTHER YEAR'S EXPERIENCE OF TUBERCULIN TREATMENT.

TWELVE months ago we had the satisfaction of commending a new work on *Tuberculin Treatment*[1] to the notice of the profession. A second edition of that work, by Dr. CLIVE RIVIERE and Dr. EGBERT MORLAND, is now before us to testify that it has met with the appreciation that it deserved as a trustworthy guide in practice. In preparing it the writers have had the advantage of another year's experience and the opportunity of learning how the method has succeeded in other hands than their own. Already a great extension may be noted in the number of institutions in which tuberculin is used, and the reports hitherto have not disclosed any reasons for apprehension on the score of general safety. Caution, however, is as necessary at the present time as at any period of recent history, and it is equally needful that a general knowledge of tuberculin, its mode of preparation and administration, its action and results under different conditions, should be acquired before any one attempts to make use of it.

The two main lines followed by different schools may be expressed as the production of immunity (*a*) by means of large doses pushed until tolerance is established, and (*b*) by means of small doses extending over long periods and not pushed to the extent of producing tolerance.

Each of these methods would appear to have produced undeniable results in so far as present benefit is concerned. Even if full allowance be made for the influence of simple faith in a mysterious remedy, there can be little doubt that, for a time at any rate, the influence of the tuberculous process is checked, and the individual regains and maintains strength to a degree not attained by treatment on general hygienic lines alone.

The writers, from close observation of results, express considerable doubt as to the wisdom of producing focal reaction in cases of pulmonary tuberculosis, and it may be presumed that they have good grounds for recommending caution. In every case of pulmonary tubercle the use of inoculation is practically a leap in the dark. It is not possible to be sure of the extent or of the present condition of the focus of disease, and, although experience may enable the specialist to form a more or less accurate judgement, there must of necessity be certain cases in which the focal reaction produces far more systemic disturbance than had been anticipated. Although in the long run such vigorous reaction may lead to no serious harm, it is nevertheless advisable to avoid it if possible.

The treatment of mixed infections does not appear to have made much headway. Vaccines prepared from the actual organisms taken from the case to be treated appear to be greatly preferable to stock preparations, which are seldom of much use. It is only in cases of open tuberculosis where surgical measures are possible that septic infections can be dealt with effectively.

With the prospective addition of many tuberculous dispensaries throughout the country, the question of the success or failure of ambulant treatment becomes a burning one. The methods adopted at the Phipps Tuberculosis Dispensary, attached to the Johns Hopkins Hospital at Baltimore, have been generally recognized as a type worthy of adoption, and the experience gained in treatment at the Municipal Dispensary at Portsmouth affords some idea of the amount of practical success that may be looked for at the present stage of the movement. Already the number of cases treated without daily supervision has reached many thousands, and thus far no catastrophe has been reported. It cannot be forgotten, however, that many cases are lost sight of, and it may well be that some of these have deliberately abstained from further treatment, lest a worse thing should befall them. The advantages offered by ambulant treatment are obvious from the patient's point of view, but there are many drawbacks from the scientific aspect.

As in their original edition, the writers refrain from the publication of their own or other workers' statistics. General experience points to the fact that closed tuberculous foci, uncomplicated by secondary infection, can be rendered quiescent or inert by the use of tuberculin, and that this desired result is obtained far more readily by such means than by simple hygienic or therapeutic measures. In cases of open tuberculosis, already the seat of mixed infection, tuberculin used with caution is a valuable adjunct to general hygienic and other means. Many patients are unquestionably better with it than without it, but in such cases it cannot be regarded as a specific in the same sense as would apply to the uncomplicated conditions.

Attention has recently been prominently called to the fact that tubercle in susceptible animals has never been shown to have been cured by tuberculin, and clinical experience does not warrant any larger assumption than that a neutralizing effect is produced upon the focus of disease, rendering it inert and for a time incapable of reinfecting the body. But this effect would seem to be temporary, and only the maintenance of sound health thereafter will serve to maintain permanent quiescence.

[1] *Tuberculin Treatment.* By Clive Riviere, M.D.Lond., F.R.C.P., Physician to the City of London Hospital for Diseases of the Chest, Victoria Park; and Egbert Morland, M.B. and B.Sc.Lond., M.D.Berne, Visiting Physician to the English Sanatorium, Arosa, Switzerland. Second edition. Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1913. (Post 8vo, pp. 262. 6s. net.)

TREATMENT AFTER OPERATION.

MR. WILLIAM TURNER and Mr. E. ROCK CARLING have written a useful book on *Treatment after Operation*[2] containing a great deal that is of sound practical value, and readable throughout. A commencement is made with a chapter on the sick room, giving general nursing instructions, and drawing attention to such risks as burns from hot water bottles. There follows a consideration of general after-treatment, including that of vomiting, shock, restlessness, and so on. This chapter might have been enlarged with advantage by a more detailed analysis of the causes of the most important general complications. The advice for treatment is practical and to the point, but such a condition as shock requires more than two pages for such an exhaustive discussion as one is entitled to expect in a volume on after-treatment. The management of aseptic and septic wounds and of haemorrhage is laid down on recognized lines; the necessity for great caution during convalescence from post-operative thrombosis is properly emphasized. There follow short chapters on operations involving different tissues and organs—the skin, nerves, bones, face, tongue, and so on. Very wisely the authors are definite in their instructions. Of course practice varies; for example, some surgeons eschew the use of protective silver leaf, etc., to cover skin grafts and find that grafts covering a clean granulating surface require no dressing other than sterile gauze. Other divergencies of practice might be noticed, but it must be acknowledged that a short handbook is no place for the discussion at length of alternative methods.

It is in the later chapters on abdominal and genito-urinary surgery that the authors fulfil their task most satisfactorily. The increasing practice of getting patients up within the first fortnight after aseptic abdominal operations is not supported; the authors are on the side of caution. The management of drained wounds of the peritoneal cavity is admirably dealt with. In acute dilatation of the stomach attention should have been directed to the value of the prone position. Mr. Cargill, who writes the chapter on treatment after eye operations, has been liberally dealt with in the matter of pages; he has therefore had an opportunity of writing a really detailed guide to the management of these cases, and has made good use of it. The illustration of this last chapter is full, of the rest of the book adequate. The practitioner or house-surgeon will find much in the volume (which is one of the series of medical books issued by the London University Press) that will help him in difficulties, and the instructions may be trusted as being throughout on sound recognized lines.

[2] *Treatment after Operation.* By William Turner, M.S., F.R.C.S., and E. Rock Carling, B S , F.R.C.S., with a Chapter on the Eye by L. V. Cargill, F.R.C.S. London Medical Publications. London: University Press. 1912. (Demy 8vo, pp. 255; illustrations 55. 10s. 6d. net.)

REFRACTION.

PROFESSOR HIRSCHBERG of Berlin has published a short treatise on *The Treatment of Shortsight*,[3] which has been translated into English by G. LINDSAY JOHNSON. The essay is founded on a lecture delivered in 1911. Professor Hirschberg first goes into the question of the history of myopia and its causes. In the matter of treatment he is most emphatic; he strongly deprecates the use of high concave glasses, and thinks that they should be used only with the utmost caution. In grades between 0.75 and 3 D. he allows a full correction to be used continually. In medium degrees from 3.5 to 6 D. full correction is to be used for distance only, while for near work weak glasses should be used or none at all. In the higher grades of 6 D. and upwards two separate pairs should invariably be ordered, and the reading pair should be half the strength, or a little more, of those ordered for distance. He disapproves of full correction for anything but momentary use in high myopia, and states that "nobody can endure wearing −16, −18, or −20 continuously." He prefers an opera glass for occasional use at a distance to the full correction. He refers to his own good results obtained by operating for senile cataract upon myopes, and shows that these results are very much better than the published results of those who have had a large experience in removing clear lenses for myopia. He goes fully into the various pathological changes known to complicate and be induced by high myopia. The use of the Heurteloup artificial leech he condemns, and considers that these cases require tonic treatment rather than the reverse, while rest from all near work is essential. Many cases are quoted illustrating the results of treatment, including that for detachment of the retina. He is by no means an advocate for the operation of the removal of the clear lens, and considers that detachment of the retina is very liable to follow it, but he has done it in specially selected and suitable cases with good results. Finally, he devotes several pages to the subject of the prevention of myopia. The book is original, and the facts are clearly stated, but the teaching will be found to differ considerably from many of the generally accepted theories on this important subject. The translator has done his work well.

Dr. JAMES THORINGTON, of Philadelphia, has brought out the sixth edition of his very useful and practical book on *Retinoscopy*.[4] It is quite a small volume but with 61 illustrations. It is particularly to be recommended because it is so well arranged, and because, in spite of its small size, it contains all that a beginner can learn, by reading, of the art of retinoscopy. All the rest has to come from practice. The author describes in detail the special method he uses in the arrangement of the light. He also advocates the self-illuminating retinoscope. There are various little devices to facilitate the working out of a refraction case which have for a long time been associated with the name of the author; these are all useful and practical, and are clearly described. The schematic eye for the practice of retinoscopy is figured, and altogether any one who wished to learn the principles of the method could not do better than study this book. We hope that the new edition, which has been revised, will be as popular with students and practitioners as those which have preceded it.

THOMSON'S "HEREDITY."

A WARM welcome for the second edition of THOMSON'S *Heredity*[5] was ensured by the admirable qualities of the first. It was a model of comprehensiveness and impartiality. The author stated the facts fully and clearly, together with the deductions they had been held to justify, but he never hesitated to advise suspension of judgement. He played the part not of the schoolmaster who would compel acceptance of his formula by the threat of the ferrule, but that of the sweetly reasonable guide and companion who carefully and exactly told all that was known and said and then suggested with a humorous smile that it is never wise to believe all that one is told. We have been led here into stating by implication one of the secrets of the success of Professor Thomson's book; it is stuffed full of facts, but its pages never long lack the lambent lights of humour and practical wisdom. As a text for the chapter on the history of theories of heredity and inheritance, he quotes from Pope's *Iliad* the apposite lines:

> Like leaves on trees the race of man is found,
> Now green in youth, now withering on the ground,
> Another race the following spring supplies,
> They fall successive and successive rise,

and adds this commentary: "The same may be said of the succession of theories of heredity, but, in both cases, there is a persistent living tree, to whose growth all the leaves contribute."

In consequence of the attitude of mind in which the author approached his task, he has had to make in his second edition very few changes in the matter of the first, and, so far as we have observed, the difference between the two lies chiefly in the records of new facts and theoretical developments which have arisen in the interval. This seems to be the case even in the discussion of Mendelism, a subject of much observation and still more speculation during the last five years.

The problems with which the book deals can never be long absent from the mind of any practitioner of medicine who thinks for himself. They insistently force themselves on his attention, but their complexity as they present themselves to him in man is so great that he must often put them away as insoluble. The biologist who has the whole of living nature for his field is more fortunate since he can begin with the simplest cases. The medical student of the subject must turn to the biologist for guidance, and in this book he will find what he needs. It cannot be too strongly recommended as a book to be read through, and then kept on a convenient shelf for reference. It is so well and logically arranged that anything that is wanted can quickly be found even without the aid of the excellent index. It should be added that Professor Thomson has compiled a bibliography which, though he describes it as "simply representative, not in any way exhaustive," yet fills sixty pages. Its value is greatly enhanced by the notes added to many of the entries, indicating the general scope and purpose of the work mentioned. There is also a list of the "best books to begin with," nearly all of them published in this century, but already numbering over thirty. There is, therefore, all the greater debt of gratitude due to Professor Thomson for giving us in one volume a comprehensive "best book to begin with," which will carry the student safely to a state of mind and knowledge enabling him to go on at once to any special line of investigation that may appeal to him. Many writers on heredity are afflicted by cocksurity. From this defect Professor Thomson is free, and we may apply to him the praise he gives to Professor Tower—his "general conception of the attributes of the organism appears to us to have a wholesome breadth and elasticity such as the present state of knowledge demands."

BREAD-AND-BUTTER WISDOM.

THE gratitude of our transatlantic brethren is due to Dr. T. F. REILLY, who, being Professor of Applied Therapeutics at Fordham University, New York, has not disdained to instruct his juniors in the art of making a success of life. Nor is the interest of his book[6] confined to his compatriots; the conditions determining financial success or failure appear to be substantially the same in the New World and the Old. When one has become accustomed to some trifling differences of nomenclature—to hearing general practitioners spoken of as "physicians," their consulting rooms called "offices," and so forth—one finds one's self in the main upon familiar ground. We have, indeed, been surprised to find how generally applicable the author's advice appears to be. The book makes quite good reading, for Dr. Reilly has a gift of sly humour and a certain genial cynicism, as well as a wide knowledge of professional economics. In a chapter dealing with post-graduate study the young practitioner is advised to take out a course in

[3] *The Treatment of Shortsight.* By Professor Dr. J. Hirschberg of Berlin. Translated by G. Lindsay Johnson, M.D., F.R.C.S. London: Rebman Limited. 1912. (Demy 8vo, pp. 123; figs. 12. 5s. net.)

[4] *Retinoscopy.* By James Thorington, A.M., M.D. Sixth edition, revised and enlarged. London: Rebman Limited. 1912. (Demy 8vo, pp. 87; 61 illustrations. 4s. 6d. net.)

[5] *Heredity.* By J. A. Thomson, M.A. Second edition. The Progressive Science Series. London: J. Murray. 1912. (Demy 8vo, pp. 643; figs. 47. 9s. net.)

[6] *Building a Profitable Practice.* By Thomas F. Reilly, M.S., M.D. Philadelphia and London: J. B. Lippincott Co. 1912. (Demy 8vo, pp. 304; illustrations 16. 10s. 6d. net.)

any speciality to which he feels himself drawn, and preferably after five or six years of general practice. By that time his tastes will have matured, and he will have acquired a knowledge of his real aptitudes and limitations. Moreover, if he goes to Europe, the hygienic benefit will be a consideration. The facilities for post-graduate study in London are deservedly commended. It is interesting to note that what we call here club practice, and our American cousins lodge practice, does not appeal to the author any more than it has hitherto appealed to us.

As a matter of fact (says Dr. Reilly) few men get much out of this line of work. The man who does succeed would succeed just as well without it. The people do not think they are getting satisfactory treatment, no matter how careful and conscientious the doctor may be, and, once they have that notion, nothing will change their value of your services. They know you are cheap, and they will not trust their children to you. From the obstetric standpoint, their wives will have the same feeling.

As to family contracts, the author condemns them unreservedly.

Do not under any circumstances take up this work; rather retire from the profession and go behind a dry goods counter than touch it.

From the chapter on medical finance we gather that the average fee ranges higher in the United States than in Great Britain. Probably, where we should charge from 2s. 6d. to 5s. for a visit, an American practitioner of similar standing would expect from one to two dollars; and in obstetric cases a fee of ten dollars would seem to correspond to our guinea fee. A good example of the author's dry humour is a remark he makes apropos of the courtesy call. He advises the beginner to utilize the occasion of this visit to ascertain "the fee table in vogue in that particular location." But he is careful to add that "unless you are dealing with a particularly high class of practitioners, you will find the fee table idealistic, and that a third to one-half less is gratefully received." Similarly, while deploring the insistence of the laity upon an early and often impossibly definite diagnosis, he indicates a plan by which this weakness can be indulged without undue risk of humiliation. "It is better," he says, "to make a double diagnosis when in doubt, and at a later period drop one of the diseases if necessary." There are many other aphorisms which we are tempted to quote, but we will conclude with this suggestion as to the method of eliciting a cash payment:

At your first call, after having finished your work, stand up in the middle of the floor and slowly look about, twirling your hat as though you were waiting for some one to come, at the same time not saying anything for a few minutes. This will cause most people to make some suggestion as to payment.

OLD COOKERY BOOKS.

ALTHOUGH Englishwomen have never enjoyed much repute as first class cooks, they have always been regarded as notable housewives, and even the great ladies of the past did not disdain to take an active interest in all that concerned the health and comfort of their families and dependants. The position of mistress of a large household was no sinecure in the good old days, when the chatelaine, besides superintending and taking part in the housework, was usually her own baker, brewer, laundress, and dressmaker, and not infrequently was called upon to act as doctor and chemist as well. Nearly every family possessed a number of homely remedies, many of which had been handed down from mother to daughter for generations, and the relation between good health and good food was fully recognized by every good housekeeper. It is not surprising, therefore, to find that many ancient cookery books include, besides the usual receipts, full directions for making up different medicines and the treatment of a variety of diseases. Dr. ARNOLD WHITAKER OXFORD, whose book on *English Cookery Books to the Year 1850*[7] contains a most interesting collection of title pages of these antique volumes, has found in them a wealth of curious detail relating to the medicine of the past. The majority of the remedies quoted by Dr. Oxford sound more strange than efficacious to modern ears, and many are frankly disgusting. To "apply a live puppy to the naked belly," as advised by *The Family Magazine* published in 1741, sounds a remarkable way of treating acute abdominal trouble, whilst the lady mentioned in *The Complete English Cook* (1762) who was cured of "a Cancer in her Breast, a Consumption, a Sciatica, and Rheumatism, which she had near twenty years" simply by taking a cold bath, would have made an excellent advertisement for any spa or holy well. Dr. Oxford is to be congratulated on his careful arrangement of this mass of material. He gives, besides the title page of each volume, a short synopsis of its contents, beginning with the *Boke of Cokery* published in 1500 and ending with *Common Sense for Housemaids*, which appeared exactly three hundred and fifty years later. His occasional extracts from these dead and gone authorities on domestic economy have much the same effect on his readers as the workhouse gruel on Oliver Twist, inasmuch as they make them long for more. The book forms an interesting sequel to the *Notes from a Collector's Catalogue*, published some time back by the same author.

[7] *English Cookery Books to the Year 1850.* By Arnold Whitaker Oxford, M.A., M.D. Henry Frowde: Oxford University Press; London, Edinburgh, New York, Toronto, Melbourne, and Bombay. 1913. (Pp. 192. 5s. net).

NOTES ON BOOKS.

IN the second edition of *A Manual for Women's Voluntary Aid Detachments*,[8] by Lieutenant-Colonel P. C. GABBETT, are included chapters on the clearing of hospitals, the equipment of those intended for temporary use, the need for training, the preparation of rooms, instruments, and dressings for operations; the administration of medicines, and the choice and preparation of diets; on first aid to the injured, on field drills and the equipment required for the training of squads, and on the kind of outfit required by a nurse when going into camp. Since the volume devoted to these subjects numbers only 112 very small pages, it is natural to find that as a whole it hardly represents what might be expected from its title. Nevertheless, there are doubtless a good many beginners who will be able to derive from it much useful information, while to those already versed in the various subjects it may possibly supply some new idea.

Dr. LESLIE THORNE THORNE has brought out a new edition of his book relating to *The Nauheim Treatment of Diseases of the Heart and Circulation*.[9] Intended to facilitate the use of this system in English-speaking countries, it describes the action and administration of the baths and the selection of cases for treatment, as also the exercises employed, the latter being very clearly illustrated. Finally come some detailed records of cases which have been under the author's observation for years. The book from the first supplied an excellent exposition of the subject, and this fourth edition, amplified as it is by the inclusion of electro-cardiograms and sphygmographic records, is decidedly attractive.

A psychological clinic, such as exists in connexion with the University of Pennsylvania, and is described by Dr. HOLMES in *The Conservation of the Child*,[10] is an institution typically modern in the best sense of that word. Staffed by a trained psychologist, a medical examiner, one or two voluntary social workers, and a stenographer, its main function is to serve as a clearing house for abnormal, and in particular mentally defective, children. By a series of careful and systematic observations, often extending over a considerable period, the subjects brought by parents and guardians are ultimately classified in accordance with the degree and nature of their departure from the normal standard of their respective ages. Great pains are taken to provide for their future welfare by directing their parents as to home training or by placing them out in one or another of the various institutions available. The voluntary workers are required to keep in touch with the patients of the clinic, to follow up and supervise their progress, and to report thereupon. In the book before us a full and clear account is given of all these activities and an excellent case made out for the social utility of such

[8] *A Manual for Women's Voluntary Aid Detachments.* By Lieutenant-Colonel P. C. Gabbett, I.M.S. (retired). Second edition, revised, and enlarged. Bristol: John Wright and Sons. London: Simpkin Marshall. 1913. (Double post 32mo, pp. 115. 1s. net.)

[9] *The Nauheim Treatment of Diseases of the Heart and Circulation.* By Leslie Thorne Thorne, M.D., B.S. Durh. Fourth edition. London: Baillière, Tindall, and Cox. 1913. (Cr. 8vo, pp. 112; figs. 55. 3s. 6d. net.)

[10] *The Conservation of the Child.* By Arthur Holmes, Ph.D. Philadelphia and London: J. B. Lippincott Co. 1912. (Post 8vo, pp. 345. 4s. 6d. net.)

work. We cordially commend the study of Dr. Holmes's book to all who are interested theoretically or officially in the important subject with which it so admirably deals.

In reviewing the first edition of Mr. YULE'S *Introduction to the Theory of Statistics*[11] we expressed the opinion that it was decidedly the best work on the subject available. The appearance of a second edition within twelve months of publication is a practical confirmation of our judgement. Some errors have been corrected, the wording of certain paragraphs has been changed, and a few additions have been made, the most important being a section on the correlation ratio. Readers of current statistical literature will be aware that some of the methods of measuring association which are advocated by Mr. Yule have been vehemently impugned. Whatever may be the judgement finally pronounced by qualified persons upon the points at issue, we have little doubt that Mr. Yule's work is, and will long remain, the best introduction to statistics in our language.

The abolition of the army and navy and the blessings of universal peace form the subject of Dr. WINSLOW HALL'S allegorical play, *The Peacemaker*,[12] in which the identity of the four great nations who play the principal parts is but thinly concealed under the names of private individuals. Dame Britt, Uncle Sam, Fritz, and Jeannette have hitherto lived side by side in armed neutrality, until the first named, urged by her youngest son Layburr, dismisses her guards, demolishes her defences, and finally prevails upon her quarrelsome neighbours to follow her example and live together in brotherly love and tranquillity. Dr. Winslow Hall has evidently great faith in the humanizing effects of universal disarmament, and satirizes severely those politicians who believe that the surest way to preserve peace is to be strong enough to enforce it. His play, which is in blank verse, has been written with the object of turning men's thoughts away from the contemplation of wars and rumours of wars, and to hasten the advent of that happy time

> When shall all men's good
> Be each man's rule, and universal Peace
> Lie like a shaft of light across the land,
> And like a lane of beams athwart the sea.

The love story of Dermot Fitzgerald and Nora Townsend, as told by the author of *The Surgeon's Log* in his novel *The Night Nurse*,[13] goes far to prove the truth of the saying that the course of true love never did run smooth, for his hero and heroine have even more than the usual amount of trials and misunderstandings before they are united in the last chapter. Mr. ABRAHAM has depicted the daily life of residents and nurses in a Dublin hospital with much vivacity and skill, though he has perhaps given undue prominence to what is, after all, only one side of the picture; and he has succeeded in treating the hackneyed theme of two women in love with the same man in a novel and interesting fashion. The author is at his best, however, when the scene of his story shifts to a little town in the wilds of Mayo, where an outbreak of typhus has caused the principal characters to congregate. It is then that his writing develops a depth and force that are lacking in the early part of the book; whilst his description of the squalid workhouse, transformed for the occasion into a fever hospital, and the heroic efforts of the overworked doctors and nurses to do their duty in the face of overwhelming difficulties, is tragic in its grim realism. The novel is considerably above the average both in style and in plot, and has, moreover, the supreme merit of being written by one who knows from personal experience the lights and shades of hospital service, and the strange mixture of tragedy and comedy that makes up the daily life of the little world enclosed within the walls of a public hospital.

[11] *An Introduction to the Theory of Statistics.* By G. Udny Yule. Second edition, revised. London: C. Griffin and Co. 1912. (Post 8vo, pp. 396; figs. 53. Price 10s. 6d. net.)

[12] *The Peacemaker: A Retrospective Forecast.* By W. Winslow Hall, M.D. London: A. C. Fifield. 1913. (Pp. 63. 1s. net.)

[13] *The Night Nurse.* By the author of *The Surgeon's Log.* London: Chapman and Hall, Ltd. 1913. (Post 8vo, pp. 316. 6s. net.)

A BELGIAN Association of Social Medicine was founded at Brussels on March 29th on the initiative of Dr. Stassen. The new association is to devote itself to the study of questions of hygiene, labour, insurance, and so forth. The provisional committee consists of Drs. Gilbert, Inspector of the Ministry of Labour; René Sand, agrégé of the University of Brussels; and Stassen, Physician to the Dispensaire de l'Espérance at Montegnée, Liége.

MEDICAL AND SURGICAL APPLIANCES.

An Operating Screen.

DR. C. A. STIDSTON of Wolverhampton has recently had made to his design by Messrs. Allen and Hanbury an appliance by which both patient and operator can easily be screened from the anaesthetist when desired. It consists of an upright of plated brass tubing, carrying an horizontal arm of the same construction and material on which towelling can be hung. The upright is attached to the operating table wherever desired by an iron screw clamp, and both the upright and the arm are freely extensible to heights and lengths within wide limits, and movable in any direction. The screws bringing about these movements are so placed as to be under the control of the anaesthetist. The appliance has been found especially useful in connexion with operations about the neck.

A Sanitary Closet Seat.

In these days when frequent absence from home necessitates the use of public sanitary conveniences, it is important that the dangers incident to many appliances in public places should be reduced to a minimum. At large railway stations it is the usual custom for an attendant to cleanse the seat of a public watercloset after use with cloth which may be indifferently clean, while in some public latrines in parks and elsewhere a rail is substituted for the seat, though in military camps even the rail has been abandoned and the straddling position over a trench is enforced. For those closets provided with a seat this part of the apparatus can now be obtained made in two halves from before backwards, a space of a few inches being left at the front and the back of the divided seat. There is thus much less chance of the seat being soiled than where the ordinary type is in use. The seats can be fixed to any closet pan, and are obtainable from Messrs. Murray, Morgan and Co., Limited, 1, Norwich Street, Furnival Street, Holborn.

SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE (LONDON, 1913).

SECTION OF RHINOLOGY AND LARYNGOLOGY.

THE President of this Section is Sir StClair Thomson, and the Acting Secretary, Mr. Douglas Harmer, 45, Weymouth Street, W.

As in other sections the mornings will be devoted to discussions. The following subjects have been selected:

Discussions.

On Thursday, August 7th, Professor Killian and Professor Jackson will report on endoscopic methods as applied to the larynx, trachea, bronchi, oesophagus, and stomach.

On Saturday, August 9th, there will be a discussion on indications for and relative values of tonsillotomy and tonsillectomy. To be opened by Professor Burger and Dr. Goodale.

On Tuesday, August 12th, Professor J. Ferreri, Dr. H. Marschik, and Dr. E. Lombard will open a discussion on the pathology and treatment of malignant growths of the nose and naso-pharynx (fibroma to be excluded).

The remaining two mornings—namely, Friday and Monday (*August 8th and 11th*) will be devoted to a joint meeting with the Section of Otology. On the former day Professor Gerber and Dr. André Castex will introduce a discussion on the methods and results of treatment of diseases of the throat, nose, and ear by salvarsan and other arsenical compounds, and on Monday Dr. Victor Delsaux and Dr. E. W. Goodall will report on the special treatment of the throat, nose, and ear during the active stages of certain infectious fevers.

The afternoon sessions will be devoted to papers offered by members of the Section.

When the arrangements for the Congress were first considered, the question arose whether laryngology and otology should continue to be divided, or should be united in one section. The former plan was adopted, but it was arranged that the *Transactions* of both sections should be supplied to members of either, that they should have conjoint meetings, and should be in close contiguity. They will both meet in the Central Technical College in adjoining rooms.

Museum.

In connexion with the Section of Laryngology, a department has been arranged in the General Pathological Museum to illustrate the following three groups of diseases: (1) Neoplasms of the nose, accessory sinuses, and naso-pharynx (excluding mucous polypus); (2) the rarer forms of laryngeal tumours, including post-cricoid

carcinoma; (3) diseases of the trachea and bronchi. There will be an exhibition of instruments to illustrate recent improvements in broncho-oesophagoscopy.

The committee is prepared to arrange for a limited number of short demonstrations in the museum at stated hours. Members who desire to lend material for exhibition are requested to communicate with Dr. Dan McKenzie, 62, Brook Street, London, W.

SECTION OF OTOLOGY.

The President of the Section is Mr. Arthur Cheatle, and the Acting Secretary Mr. Sydney Scott, 130, Harley Street, W. Messrs. J. S. Fraser, G. J. Jenkins, and Patrick Dempsey are also secretaries. It has been stated that this section is closely connected with Section XV (Rhinology and Laryngology), and that a subscriber to either receives the *Transactions* of each. Joint discussions on (*a*) the methods and results of treatment of diseases of the throat, nose, and ear by salvarsan and other arsenical compounds; and (*b*) special treatment of the throat, nose, and ear during the infectious fevers, will, as there mentioned, be held. The other mornings will be given up to discussions on: (*a*) The pathology of deaf-mutism, on which Professors Alfred Denker and Holger Mygind will report, and Professor Siebermann will give a demonstration; (*b*) non-suppurative diseases of the labyrinth (reporters, Professors G. Alexander and Karl von Eicken); and (*c*) climatic and occupational influences in diseases of the ear, introduced by Dr. Clarence Blake and Professor Gradenigo. In addition, an extra discussion has been arranged for surgical anatomy of the mastoid region. This will be held on Wednesday afternoon, August 6th, and will be opened by Professor Mouret. The afternoon sessions will be given up to independent papers.

There will be a museum connected with this section, which will be devoted to illustrating by specimens, transparencies, and other exhibits, the anatomy, physiology, pathology, and surgery of the labyrinth. Members who desire to lend material for exhibition are requested to communicate with W. M. Mollison (Secretary), 48, Brook Street, Grosvenor Square, London, W.

Entertainments.

The dinner of the combined Sections of Rhinology and Laryngology and Otology, to which all foreign members who register their names will be invited, will be held at the Hotel Cecil on Tuesday, August 12th, at 7.30 p.m. Tickets can be obtained from the Treasurer, Mr. Mark Hovell, 105, Harley Street, London, W., at the price of 2 guineas. An excursion to Oxford on Sunday, August 10th, will also be arranged. Visitors will be asked to pay their own expenses, amounting to about 10s. 6d. each, and it is possible that the numbers may have to be limited. Gentlemen wishing to give private entertainments of any kind during the Congress, and visitors who require hotel accommodation, are asked to notify the Secretary of the Entertainments Committee, Mr. Cecil Graham, 17, Upper Wimpole Street, London, W.

WE are informed that, though a large number of the children when received into Dr. Barnardo's Homes are in an emaciated condition and physically afflicted in various ways, the death-rate last year was only 5.15 per 1,000; 17,191 children in all were dealt with during the year, and nearly 9,000 are always in residence.

AT the annual meeting of the Medical Association of the Greater City of New York, the recent official request of the New York Board of Health that all practitioners should report promptly to them all cases of syphilis, gonorrhoeal infection, and chancroid, together with the source of infection, if obtainable, was discussed. On the proposal of Dr. William S. Gottheil it was resolved that such notification would be an undesirable and useless invasion of the most confidential relationship between physician and patient. The mere compilation of statistics in venereal diseases, it was suggested, had no value, and the attempt to make it in this manner was a direct incentive to falsification and disobedience of the law. The measure was described as of value only as a step towards the relegation of these cases to the Board of Health, and it was urged that its ultimate effect would be to promote self-medication and quackery. It was further resolved that a committee should be appointed to decide what action should be taken in the matter.

THE REPORT OF THE ROYAL COMMISSION ON UNIVERSITY EDUCATION IN LONDON.

BY ERNEST H. STARLING, M.D., F.R.C.P., F.R.S.,
JODRELL PROFESSOR OF PHYSIOLOGY, UNIVERSITY COLLEGE.

II.—THE MATRICULATION QUESTION.

THE University of London has for so long been a mere sorting and labelling machine that we in London often find it difficult to conceive of a University from any other point of view. One of the main causes of dissatisfaction with the University has been the impossibility of obtaining a label, in the shape of a degree, for the majority of London medical students. Though the inability to obtain a degree may represent a real disability to London students, and may have had an injurious action on the entries to our medical schools, it is not a matter which directly affects either the community or the science of medicine, nor could it serve as a pretext for State interference with the present University or for the grant of funds from the State for the foundation of a new University. So far as labels and examinations go, the State protects itself by prescribing a certain minimum of knowledge which must be obtained by its licensed practitioners, and has entrusted a body—the General Medical Council—with the office of guarding this standard. It is, however, of importance to the community that as many practitioners as possible should have received an education considerably transcending the prescribed minimum, and it is therefore in its interests that the general standard of medical education should be as high as possible, and that London, with its rich store of clinical material and its attraction for the greatest intellects in the profession, should be equipped and organized for the utilization of material and men and thus play its due part in the education of the profession and in the advance of medicine.

Entrance to the University.

From this standpoint the State is justified on behalf of the community in remodelling the University and employing public funds in the foundation of a great school of medicine, and endeavouring to attract to this school as large a proportion as possible of its future practitioners of medicine. The continuance of the present impediments to the entry upon a University course in London would effectively bar the new University from taking its proper share in the medical education of the country. At first sight it is not easy to make out how the measures proposed by the Commissioners will accomplish this object—that is, an increased accessibility of the University course to the London medical students. Indeed, the report evidently contemplates that at first its constituent college or colleges of medicine will be confined to the students of London, Oxford, and Cambridge Universities; and it is significant in this connexion that the report estimates that more than half of these students will have received their preliminary and early training at Oxford and Cambridge, and thus will not be in the strict sense of the term London University students at all. A more careful consideration of the report shows, however, that this will apply only for a short time immediately after the inception of the University.

In order to see how this condition of things will be remedied, it is necessary to read the parts of the report dealing with the question of entrance to the University and school-leaving examinations, together with the report of the Consultative Committee of the Board of Education.[1] In the preface to the latter report the Board of Education indicates that it is engaged in formulating a definite scheme of action in accord with the main principles laid down by the Consultative Committee in respect to school-leaving examinations, and such examinations as give entrance to universities. This report appeared in 1911, and it seems probable that by the time the new University of London comes into existence, which we may hope will not be more than three years from the present date, the Board of Education will have devised some common scheme of school examination which will apply to the whole country, and which will determine the admission

[1] Board of Education. Report of Consultative Committee on Examinations in Secondary Schools. H.M. Stationery Office. 1911. Price 2s. 6d.

to all the universities, and, perhaps, to all the learned professions. It may be interesting to anticipate, in the light of the recommendations contained in these two reports, the manner in which the Board of Education may be able to co-ordinate the multifarious school examinations, local examinations, and university entrance examinations, which at present are the terror of the schoolmaster and the stumbling-block of the students.

Most London teachers would agree that the majority of the London medical students are capable, or might be made capable, of profiting by university education of the highest type. A minority, which is probably not greater than 10 per cent., who have been crammed through some inadequate preliminary examination, ought never to have entered the profession at all. Some of these fail to qualify; others slink in after many years through some of the back doors to the profession which still exist in various parts of the country. The majority, however, fail to commence a University career simply because they have not passed the matriculation examination. It cannot be pretended that this examination is too difficult. It is, however, only suited to a certain number of schools. Boys coming from other schools would have to undergo a special preparation for this examination. At the present time the majority of the boys and girls in the secondary schools who are expecting to proceed to a University or to any profession pass some examination or other while they are at school. Of these school examinations there is an enormous number; Oxford and Cambridge both hold three examinations in addition to the Joint Schools Examinations. The students entering St. Bartholomew's Hospital in one year had passed the following examinations as entitling them to begin the study of medicine: London Matriculation, College of Preceptors, Cambridge Previous Examination, Oxford Responsions, Cambridge Senior Local, Oxford Senior Local, Oxford and Cambridge Schools Examination Board, Educational Institute of Scotland, B.A. Cape of Good Hope, Matriculation Royal University of Ireland, Central Welsh Board, Sandhurst Entrance Examination. Until a few years ago none of these examinations, except the London Matriculation itself, would have allowed a student to matriculate as an undergraduate of the London University, and even now, when a few of them are allowed as alternatives to the Matriculation, the subjects have to be taken in exactly the same combination as is prescribed for the London Matriculation, irrespective of the nature of the curriculum of the school at which the boy has been educated. The function of a University is to educate, to make the best of the students presented to it by the secondary schools, and it is neglecting its duties if it refuses to accept three-fourths of those who would enter its portals because the ideals of the school where they have been educated do not fit in to a certain Procrustean bed devised by the University.

There can be no doubt that a new University, guided by an Academic Council which regards education as the main function of a University, will at once get rid of the disabilities at present attaching to boys educated in two-thirds of the schools of the country, and will accept any school-leaving examination or local examination which affords evidence of a secondary education sufficient to enable a boy to profit by the education offered him by the University. The whole present system of school examinations is, however, temporary. University education must be hampered and kept back while secondary education is in its present inchoate and unorganized condition. Reform of secondary education will mean improved quality of the students coming to the University and greater power in the hands of the University, and this reform must be carried out by the schools themselves, and cannot be enforced on them by a system of matriculation regulations.

Let us consider what preliminary education the student needs who is to commence the study of medicine. In the first place he must have a sound knowledge of his own language, English, so that he not only apprehends what he reads or hears, but has also acquired the power of expression and of orderly thought. The development of reasoning power cannot be dissociated from the use of language, and it is one of the defects of our school education as compared with that of France that children are rarely taught to use language as an instrument. "English" generally means English literature or English grammar, whereas every lesson in geography, in history, in chemistry or physics, should be at the same time a lesson in the use of English—that is, in the art of expression and of reasoning.[1] Since the student is to devote his time to some of the most difficult branches of biological science, he should also be acquainted with the principles of the nature and reaction of things—that is, he should have an elementary knowledge of physics and chemistry. For this purpose he will need to add to his knowledge of English a knowledge of the language of quantity and exact measurement—namely, mathematics.

Moreover, since science is international in character, he ought to have at least a reading acquaintance with one or two modern languages other than his own, and there is very little difficulty in teaching children during their school years both to read and speak sufficiently well for practical purposes two modern languages. Thus the training which a student should have received to qualify him to pass through the gateway of a medical faculty of a University should include English, mathematics, elementary physics and chemistry, and one or two foreign languages.

A medical man, however, is a member not only of a learned profession, but also of a community including individuals engaged in many other forms of activity. Social intercourse among these individuals involves a certain common fund of knowledge and interests, and for this purpose it is important that every child, whatever its future destination in life, should pass through a certain common education—an education which should give them some idea of the history and political conditions of their country, its relation to other countries, its literary possessions, and the foundations of its laws, customs, and ideals. As a result of this education, the child will acquire a fund of culture to which he may add in one direction or another according to his tastes later on in life, and it is evident that in the hands of different schoolmasters one or other side of this discipline will tend to undergo hypertrophy at the expense of the others. If, however, the education is such as to arouse the child's interest, to create mental alertness, and to impart habits of discipline, the education may be considered as having succeeded in its object.

The Scottish School-leaving Certificate.

Considerations such as these seem to have influenced the Commissioners as well as the Consultative Committee of the Board of Education in their respective reports, and to have actuated those responsible for the system which is actually in work in Scotland. In Scotland practically all the secondary schools are under the control, either in respect of grants or by their voluntary action, of the Scottish Education Department. This Department has a staff of inspectors and examiners, so that it is able to exercise a very considerable control over the curriculums in the various schools. It does not attempt to achieve uniformity among the different schools, but rather to encourage educational experiments. The work is, however, so arranged that, whereas during the early years of the pupil he is studying subjects of general culture, during the last two or three years he is specializing more in the direction of the subjects which will be of value to him in his future career. Two sets of examinations are held at the schools. The first examination is held at the end of a course, called the Intermediate Curriculum, which extends over not less than three years. This curriculum, in order to be approved by the Board, must provide for instruction in at least five subjects, embracing English (with English history and geography), a language other than English, mathematics, experimental science, and drawing. The general standard which is looked for as a condition of the award of the Intermediate Certificate is the degree of all-round proficiency which a well-taught pupil of average ability might reasonably be expected to attain at the age of 15 or 16. After gaining the Intermediate Certificate the pupil must take a post-intermediate course at the school of at least two years' duration. During this time he must study not less than four subjects taken from a fairly extensive list, and at the end he is examined, and, if successful,

[1] This point has been extremely clearly brought out by Mr. P. J. Hartog (Academic Registrar of the University of London) in his small book, *The Writing of English*.

granted a Leaving Certificate. In this examination, as in the examination for the Intermediate Certificate, comparative excellence in one branch may be held as compensating for some degree of deficiency in another. This leaving certificate in Scotland is the usual avenue to the universities. The object of the whole scheme is to free the schools and give them the determination of the direction in which the education of the pupil should develop. It has not, however, done away with university preliminary examinations, which are still regarded as necessary for candidates from India, the Colonies, etc.

School Examination for England.

It is a weak point in the Scottish system that although the Leaving Certificate is necessary for the University, a relaxation of this rule is made in the case of medicine, admission to which faculty is made on the strength of the Intermediate Certificate. The report of the Royal Commission agrees with that of the Consultative Committee in recommending the institution of two such examinations in the secondary schools of England and Wales also. The first examination, to be passed at the average age of 16, would include the subjects of general culture which form the main basis of the curriculum of the school in question. In this curriculum it is evident that the chief emphasis might be laid either on classics or on science or on modern subjects, according to the traditions of the school or the ultimate destination of the majority of its pupils.

The second examination would be held two years later—that is, at the average age of 18—and in the case of future students of medicine, engineering, or science, would probably include English, mathematics, physics and chemistry, and possibly a modern language, and in some cases biology. It is evident that many schools would not be in a position to give this further specialized education in science, which should be the leaving examination for all students intending to take up the study of any science at the University. At first, therefore, it would be necessary to admit students to the University on the results of the junior examination, and the elementary instruction in science such as that given for the Intermediate Scientific or for the Preliminary Scientific Examination would have to continue to be given at the University. Under the fostering influence of grants, however, from the Board of Education it may be possible to group the schools in different districts and to provide first-class scientific instruction in one school in each group, together with bursaries or travelling allowances for the students, so that in this school a first-rate instruction in elementary science could be given. In the same way other schools might specialize in classics. It is doubtful whether the Board of Education will be able to effect so complete a unification as is carried out under the Scottish Education Board. It must be remembered, however, that it has considerable control over the majority of the schools in the country and of the universities by virtue of the grants which it makes every year. It seems possible that, instead of forcibly abolishing all the agencies of school examination which at present exist, it may make use of them and their organizations to conduct the type of examinations which in Scotland are in the hands of the Education Board itself. It could limit a school to that form of intermediate and school-leaving examination which is most suitable to the requirements of the majority of its pupils. By its inspectors it can satisfy itself of the sufficiency of the education imparted at each school, and it will then be in a position to insist on an equivalence of all the school-leaving examinations as entrance examinations to the Universities or to those departments of the University which are in receipt of its grants.

The Place of Teachers in the New University.

The main point, however, of the report of the Royal Commission is that in academic matters the guidance of the new University will be in the hands of the teachers. The aim of the University will be teaching and not labelling, and it is difficult to conceive that it will not, either in co-operation with the Board of Education or of its own initiative, endeavour to gather into its net all those who are in need of higher education and are in a position to profit by its instruction.

A Criticism of Professor Starling's First Article.

To the Editor of the British Medical Journal.

Sir,—Professor Starling has contributed to your issue of May 17th a very interesting dissertation on the Final Report of the Royal Commission on University Education in London. He naturally receives the report with approbation; indeed, he may feel some pride of paternity in it, for the Commissioners have done him the honour of largely reproducing his own individual views. In their most important recommendation, that is, as to the government of the new University, the Commissioners have followed "Report A" of the Academic Council. "Report A" can be demonstrated to be chiefly, if not wholly, of Professor Starling's drafting.

With your permission I shall comment upon the recommendations of the Commission, chiefly as presented by Professor Starling.

The Preliminary and Intermediate Teaching.

Professor Starling is obviously disappointed that the Commissioners have not—ostensibly—revived his pet scheme of concentration of the preliminary and intermediate teaching in three centres. Their astuter advisers no doubt cautioned them that it would not really do to run directly counter to the Report of Lord Macnaghten's Committee of the Senate, which had condemned this scheme, root and branch, only a few months previously to the appointment of the Commission. But Professor Starling may be, and no doubt is, completely reassured; for the Commissioners really concede the substance of his aspiration; they give back with one hand what they only seem to have taken away with the other. The Concentration Scheme, it will be remembered, contemplated the provision of three centres for the teaching of the preliminary and intermediate medical studies—that is, of chemistry, biology, physics and anatomy, physiology and pharmacology. Of these three centres, University and King's Colleges, the only ones actually in being—and the only ones, some of us think, ever really contemplated—were to be two. In spite of the most energetic canvassing, no subscriptions were received in response to the appeal for support of this scheme (Senate Minutes, 1907–1908, No. 543).

To understand the present position aright it must be carefully borne in mind that University and King's Colleges are by recent Acts of Parliament protected in the permanent retention of the teaching of these subjects; wherever else they may or may not be taught, they must be retained at these colleges.

Now we are told by the Royal Commission that the preliminary subjects will, it is hoped, in future be taught at the secondary schools of the country. But, as Professor Starling admits, there is no general provision, and cannot be general provision, of such teaching for many years, if, indeed, general provision ever becomes possible. "Meantime," we are told, "the teaching of those candidates who have been unable to obtain the necessary instruction at school should be provided for, either in the Science Laboratories of the University itself, or institutions recognized for the purpose by the University." For "Science Laboratories of the University" we must read the "Laboratories at University and King's Colleges," which are the only undergraduate laboratories at its disposal. The inference is fairly obvious that the preliminary teaching will be the monopoly of King's College and University College for many years to come, if not for ever.

The suggestion that chemistry, biology, and physics should be taught at the secondary schools and cease to be university subjects seems to me, if seriously intended, the most retrograde of measures. At a time when the civilized world is ringing with the discoveries in chemical therapeutics associated with Ehrlich and his school, it seems, indeed, singularly inopportune to withdraw chemistry, for example, from the University curriculum. The teaching of these subjects at the medical schools, as at present conducted, is said by the Commissioners to be "inadequate." Is it conceivable that the secondary schools, scattered throughout the country and with necessarily small classes in these special subjects, will attract abler teachers than those now employed by the medical schools? The insistence upon a high proficiency

in the preliminary scientific subjects has always honourably distinguished the London degrees, and this recommendation must inevitably reduce the standard of their teaching.

Intermediate Studies.

We are told that King's College is to be removed to the vicinity of University College in Bloomsbury, and it is hoped to found a University quarter in London round these two favoured seats of learning. As the medical faculty is one of the largest in the University and will certainly be the largest body of residential students, it is reasonable to suppose that the new medical colleges to be established will also be in that area. The supposition becomes stronger when we are told that intermediate teaching will be conducted "in close proximity" to the new colleges—Professor Starling says by the same institutions. Keeping in mind the privileges secured by King's and University Colleges, it is obvious that two of the three new centres must include these colleges. The old scheme of concentration of preliminary and intermediates studies is thus revived in all its nakedness, with the addition that that panacea is to be applied to the clinical teaching as well. I doubt whether the addition will make the scheme any more palatable to the schools left outside than it proved in 1906–7, and the arguments which weighed with Lord Macnaghten's Committee are stronger now even than then. That committee found:

> That apart from the money difficulty (that is, the absence of adequate financial support) which, in the opinion of the Committee, is of itself fatal, the scheme has also become impracticable for other reasons. The Medical Faculty, which formerly reported in favour of the scheme, has now reported against it. Several of the medical schools have changed their opinions in the same sense, and some of them had made arrangements involving considerable outlay for providing more efficient instruction in preliminary and intermediate medical studies.—Senate Minute, 1907–1908, No. 553.

Final Studies.

Professor Starling describes the Commissioners as "men whose life business it has been to act or to devise policies after taking the opinion of experts on the different problems involved." How have they done so in the recommendations as to the final studies? They consulted a very large number of representatives from the medical schools, from the Royal Colleges, and from the various educational bodies. They ignored these real experts, and have produced practically in its entirety the fantastic scheme of one, or at most two, witnesses, both with no personal experience of medical education in London; one, the chief and perhaps "the only begetter," Mr. Abraham Flexner, is an American layman who exhibited the most ludicrous ignorance of our English system; the other is a physician who had spent all his active professional life in America. The "Flexner scheme," as it may very properly be called, was indeed condemned most emphatically and specifically by witnesses with actual experience and knowledge of the questions at issue, who really can claim to be experts. Professor Starling attempts to counter this serious opposition by a mere flippancy. "Mediocrity," he says, "is certain to be up in arms at the institution of any system which promises to pick out and place in a superior position the talented, the enthusiast, and the man of genius."

When it is seen by perusing the evidence that men such as Sir A. Gould, Sir H. Morris, Sir B. Dawson, Sir A. Bowlby, Sir Thomas Barlow, Drs. Herringham, Sharkey, Frederick Taylor, Norman Moore, Campbell Thomson, Norton, Fisher, Garrod, and others specifically opposed the Flexner scheme, I think Professor Starling is sufficiently answered.

Let us, however, examine these suggestions more closely. "The most important innovation in the scheme," says Professor Starling, "and the one which promises most for the advancement of medicine in this country, is the recommendation that university professors shall be appointed to deal with the clinical subjects." The clinical demonstration on the German model is, it appears, to be the means of salvation; but the professor and his assistant are also to continue the bedside teaching which is traditional in the English schools, and which is wholly absent from the German model:

> No German student (says Dr. Head) has ever handled an individual patient until he has qualified. No student enters the wards except very occasionally in the company of his professor or his assistants. Each patient he has seen has been brought out for examination to an auditorium. (Fifth Report, p. 141.)

The change in our present system is considered necessary because our teachers are said to be unable to give the time required for the elaborate staging and accessories of the German theatrical demonstration. How, it may be asked in turn, are the professor and assistants to find time for the much more exacting bedside teaching, absorbed as they will be by the glorified public demonstrations, and the researches which are their *raison d'être*. We are told that the professor will be limited in his private practice, and so will devote more time than it is presumed the present clinical teacher does. It is obvious that it will be about as possible to limit the professor's private practice as it would be to limit his hours of sleep or the amount which he eats at his meals. I have personal acquaintance with several German professors. They have one and all been men with large practices, a circumstance which, indeed, was rendered inevitable by the prestige and reputation conferred by their appointment. An entirely erroneous opinion, which has been demonstrated by many witnesses to be erroneous, seems to be held by the Commission, that present day teachers give the briefest possible time to their duties. I had the good fortune to be clinical clerk for nine months to that incomparable teacher, the late Dr. Howship Dickinson, who used to spend from three to four hours every day of the week in his wards.

Professor Starling says:

> The complete lack in London of teaching of university rank in the professional subjects of the medical curriculum was brought clearly before the Commission by Flexner.

Most persons will accord more authority to the opinion of the great universities of Oxford and Cambridge as to what constitutes teaching of university rank even than to the opinion of the omniscient Flexner; and these universities have been willing for many years to give the imprimatur of their degrees to men whose tuition in these subjects has been wholly given in the London schools of medicine.

We are told by Mr. Flexner, who gets his usual echo from the Commission, that the professor is to use his hospital ward as the chemist uses his laboratory. Those who are familiar with German hospital methods have sometimes been shocked at what appears to the English-trained man as callous handling of the sick. This new notion of the function of the hospital patient as a sort of experimental reagent is not likely to be favourably received either by the charitable public or by the hospital patient himself.

The Faculty of Medicine.

The worst feature of the scheme is that it creates two kinds of medical school: the privileged college and the school not so privileged. The teachers at the colleges are to form the new Faculty of Medicine on which the schools will be unrepresented. Professor Starling makes as much as he can out of the new "Board of Studies," which is to satisfy the outside schools, but omits to mention that whereas the college teachers, constituting the Faculty, report directly to the Senate, the Board of Studies reports to the Faculty—that is, to a body of rival teachers directly and personally interested in the ultimate extinction of the outside schools. It is said that no compulsion will be exercised on the pupils of the schools to go to the colleges, but when we consider that at the latter institutions the pupils are to be examined by their own teachers, whereas the students at the schools will have to submit themselves, with no guidance from a syllabus as to the scope of the examination, to the collegiate teachers, and will have to compete with collegiate students whose degrees, we are told, will be given rather as certificates of good behaviour during pupilage than upon examination tests; when we further consider that the privileged colleges are to be subventioned from public funds by at least £12,000 per annum for each college in addition to students' fees and Board of Education grants; when we recall that these grants are, as Dr. Headlam, late Principal of King's College, has pointed out, almost certain to be manipulated so as to enforce the findings of the Royal Commission, the conviction is forced

upon us that the survival of the schools against such unfair competition cannot be long maintained, and is not expected to be maintained.

Professor Starling closes his dissertation with this clause, which is no doubt intended to discourage expression of dissent from his own opinion:

> Those who oppose these changes (he writes) will have to show that their opposition is really based on a consideration for the welfare of medicine and the medical sciences, and is not directed by a regard for the private interests of themselves or their school.

It is equally pertinent to inquire to what degree the advocacy of those who advocate these changes "is directed by a regard for the private interests of themselves or their school." By both these canons Professor Starling stands condemned as himself the least disinterested of critics, a fact which cannot but detract from the respect which might otherwise be accorded to any avowal of his views.—I am, etc.,

London, W., May 26th. E. Graham Little.

Nova et Vetera.

THE FIRST GERMAN BOOK ON SURGERY.

In an address delivered before the St. Louis Medical History Club, and reprinted in the March number of *Janus*, Dr. Frank J. Lutz gives an interesting account of an old German book on surgery. It is entitled *Das Buch der Buendth-Erztnei* (the book of bandaging).

The author, Heinrich von Pfolsprundt, flourished about the middle of the fifteenth century. At that time, in Germany as elsewhere, the treatment of all external diseases was in the hands of barber surgeons, who were united in a guild. They learnt their art from a master, and were accepted as apprentices on condition that they were of German parentage and were considered worthy by the freemen of the city. The admission of a pupil was a function accompanied by prescribed ceremonies, which took place before the assembled council of the burghers, and in the presence of the Master. After the apprentice had served his time, and had shown himself "learned in the art," he was made a journeyman. To become a master he had to present his indenture and pass an examination. In proof of his skill he was obliged to produce a "masterpiece." This, according to the regulations for the barber surgeons of Hamburg from 1468 to 1519, consisted in a demonstration of methods of reducing dislocations. Pfolsprundt was a practitioner of this class; he learnt the elements of minor surgery in the barber's shop, and enlarged his knowledge by study under masters of renown in various parts of Germany and Italy.

His book is said to be the first surgical treatise written in German. It was composed in 1460, being thus older by thirty-seven years than that of Hieronymus Brunschwig. The manuscript of the work was found in 1858 among the effects of a doctor in Silesia, and probably had belonged to the library of the University of Erfurt. Since this was published in 1868 by Haeser and Middeldorpf another copy has been found by Haeser in the Royal Library, Dresden, which differs in many particulars from the first manuscript.

Had the book been published at the time it was written, Pfolsprundt would have been recognized as the first to describe the operation of rhinoplasty, to which the name of Tagliacozzi, who described it 126 years later, has ever since been attached. Pfolsprundt seems also to have been the first who made special mention of gunshot wounds. His teaching as to some points in abdominal surgery shows that mediaeval practitioners were more advanced than we at this time of day are apt to believe. In the thirteenth century the Four Masters had recommended that in transverse wounds of the intestine, especially the large one, the trachea of an animal should be inserted into the lumen of the gut, which was first drawn out with a thread. The intestine was then stitched together over the trachea and brought to the wound in the abdominal wall. It was thought that in time the trachea would be disintegrated and discharged. Pfolsprundt recommended in such cases freshening the wound by complete division of the intestine and inserting a silver tube, large enough to allow faecal matter to pass through. Over this tube the cut ends of the bowel were to be tied with green silk thread. Here we have a kind of forerunner of Murphy's button, but we are not told what became of it, or how the vitality of the gut was maintained, after the constriction of its ends by the threads tied over the tube. He says, however, that a patient so treated might survive from forty to fifty years.

Pfolsprundt seems to have belonged to a noble family which dwelt in the little town of Pfolzpaint, which is still in existence near Eichstaedt in middle Franconia, Bavaria. He was a member of the German Order, and gained considerable surgical experience in the wars against Poland. His book was written for the instruction of barber surgeons. He was an uneducated man and had no knowledge of anatomy, not even of the bones, although he had a large practice in the treatment of fractures and dislocations. He does not quote a single author. But within his sphere he was a sensible, experienced practitioner, and frequently reminds the reader how necessary it is to use common sense in adapting the treatment to the special needs of the patient. He set up a high standard of professional morality, insisting that before the surgeon attended a patient he should hear Mass unless the case were too urgent, when he should recite five Paternosters, five Aves, and the Creed. He warns the surgeon against drunkenness, and urges that he should not eat onions because of the danger to the wound from his contaminated breath, nor indulge in unclean cohabitation before handling a patient. His bandages should be clean, and he should wash his hands before dressing a wound.

The barber surgeon collected and prepared his own plants, keeping his methods of doing so secret. Pfolsprundt knew how to put "a person to sleep whom you wished to cut or one who is suffering from insomnia" by narcotic inhalations. Opium, hyoscyamus niger, atropa, mandragora, unripe mulberries, hemlock, etc., were dissolved and sponges saturated with the solution. These were afterwards dried in closed vessels in the sun or indoors. Before such a sponge was used it was placed in warm water for an hour and then held before the patient's nose until he fell asleep. After use the sponge was dried for future service. The patient was aroused from this sleep by holding before his nose a wad of charpie containing vinegar, fennel seed, and olive oil.

SCIENCE NOTES.

Some account has already been given here of certain physiological observations at high altitudes made during the expedition to Pike's Peak under the leadership of Dr. J. S. Haldane of Oxford during the summer of 1911. Miss Mabel P. Fitzgerald has recently reported to the Royal Society observations made during the same expedition on changes in the breathing and blood in persons residing in towns, mining camps, etc., at various altitudes from 5,000 to 14,000 ft. in the Colorado portion of the Rocky Mountains. It was found that the volume of air breathed per unit mass of CO_2 produced by the body was always increased in persons acclimatized at high altitudes. The mean increase of breathing was such as to produce a fall of about 4.2 mm. (or roughly 10 per cent. of the normal for sea level) in the partial pressure of CO_2 in the air normally present in the lung alveoli for every 100 mm. of fall in the barometric pressure. Both men and women showed this fall, after allowance had been made for the normal difference in the alveolar CO_2 pressure of men and women. The percentage of haemoglobin in the blood of acclimatized persons was likewise increased, the mean increase being about 10 per cent. of the normal at sea level in men for every 100 mm. of diminution in the barometric pressure. Both men and women showed this fall. It might take some weeks for the changes to establish themselves fully in persons passing to a high altitude or to disappear in persons passing to sea level. The increased breathing and percentage of haemoglobin seem to be adaptations to the shortage of oxygen consequent on the diminished atmospheric pressure.

In his Bakerian Lecture last week before the Royal Society on positive rays of electricity, Professor Sir J. J. Thomson returned to a subject with which he dealt

earlier in the year, as noted in this column last March (p. 514). The positive rays were observed first by Goldstein in 1886, who named them *canal strahlen* (canal rays), because they are expelled backwards from the kathode through channels cut in the plate. They are deflected by strongly magnetic and electric fields. Sir J. J. Thomson used positive rays emitted through a minute tube, and studied the effect of these deflections by taking photographs of the tracks. The particles in the canal rays consist of charged ions, whose mass and velocity depend on the nature of the gas in the tube, and the main general interest of the Bakerian Lecture lay in the contention, the truth of which seems to be generally admitted, that the use of the positive rays in the manner indicated affords a new method of analysis which, in the skilled hands of its discoverer and his disciples, will render it possible to solve certain chemical problems, or at least to enable them to be attacked from a new direction. Sir J. J. Thomson adheres to the opinion that X_3, described in the previous note on this subject, is a new element with atomic weight 3, though he discussed certain other possible explanations, one of them being that there was a hitherto unrecognized element with atomic weight 2, and that X_3 was a stable compound of this with hydrogen. He, however, preferred to regard it as a monatomic element of atomic weight 3 comparable with the inert gases, and pointed out that Mendeléef had predicted an element with that atomic weight, although he expected it to possess the properties of a superfluorine, which were very different from those of X_3. The method of positive rays had also afforded evidence of the existence of another new element of atomic weight 22 occurring in association with neon in the proportion of 5 to 10 per cent.

LITERARY NOTES.

THE June number of the *English Review* will contain an article entitled "Spontaneous Generation" by Dr. H. Charlton Bastian.

Mr. E. V. Lucas, in his book entitled *A Wanderer in London*, when speaking of St. Saviour's, Southwark, says that among the epitaphs is one upon Lockyer, "the Cockle and Holloway, Beecham and Carter of his time—the middle of the seventeenth century":

> His Virtues and his Pith are so well known
> That Envy can't confine them under Stone.
> But they'll survive his dust and not expire
> Till all things else at th' Universal Fire.

Yet where, asks Mr. Lucas, are the pills of Lockyer? "Where are the galleons of Spain?" We suggest that not improbably their virtues and their pith are embodied in some newer pill. It were a curious speculation that might have engaged the attention of Sir Thomas Browne to conjecture the metempsychoses which these things undergo.

We have received a copy of the *Irish Book Lover*, a monthly review of Irish literature and bibliography, edited by Dr. John Smith Crone, of Kensal Green. It contains an account of Mr. James Stephens, described by the *Saturday Review* as "a new power among the writers of Ireland." There is also a note on Dr. Edmund Bailey O'Callaghan, who, after a few years' practice in Quebec, went to Montreal and became editor of a newspaper. He was elected a member of the Legislature, but owing to a disturbance of the political atmosphere he removed to the United States, where he settled in Albany and again for a short time practised medicine. He was appointed custodian of the historical manuscripts in the Secretary of State's Office. That position he held till 1870, when he moved to New York. He died in 1880. He was the author of a number of monographs on historical and bibliographical subjects. We commend the *Irish Book Lover* to the favourable notice of all lovers of books and antiquarian lore. In a small compass it contains a goodly amount of interesting reading.

In Mr. John Fyvie's *Story of the Borgias* (Eveleigh Nash, 1912) there is an amusing account of a doctor of Ferrara in the seventeenth century, and a copy of a diploma given him in 1642 for his skill in medicine. It should be premised that Ferrara, like Padua and Bologna, was celebrated for its school of medicine, but some notion of the knowledge required of its graduates may be gathered from the diploma. The document is said to have been discovered by the historian Citadella in the archives of Ferrara, and was seen by Mr. William Gilbert (father of Sir W. S. Gilbert and author of a biography of Lucrezia Borgia which appeared in 1869) engraved on parchment in the library of that city. A certain Generoso Marini, wishing to practise as a legally qualified physician, applied to the judges for a diploma, and duly presented himself for examination. The following is the text of the diploma, which bears the signatures of "Joannes Cajetanus Modoni, Judex sapientum civitatis Ferrari," and "Franciscus Altramari, Cancellarius."

> Having publicly examined and approved the science and knowledge of medicine of Signor Generoso Marini, and his possession of the wonderful secret called *orvietano*, which he exhibited on the stage built in the centre of the Piazza of this our city of Ferrara, in presence of its entire population (so remarkable for their civilization and learning) and in presence of many foreigners and other classes of people, we hereby certify that, in our presence also as well as that of the city authorities, he took several living toads, not those of his own providing, which might have given suspicion of deception on his part, but from a great number of toads, which had been caught in fields of the locality by persons who were strangers to him, and which were handed to him at the moment of making the experiment. An officer of the court then selected from the number of toads collected five of the largest, which the said Generoso Marini placed on a bench before him, and, in presence of all the assembled spectators, he cut all the said toads in half with a large knife. Then, taking a drinking cup, he took in each hand one half of a dead toad and squeezed from it all the fluids and juices it contained into the cup; and the same he did with the remainder. After mixing the contents together he swallowed the whole; and then, placing the cup on the bench, he advanced to the edge of the stage, where for some minutes he remained stationary. Then he became pale as death, and his limbs trembled, and his body began to swell in a frightful manner, and all the spectators began to believe that he would never recover from the poison he had swallowed, and that his death was certain. Suddenly, taking from a jar by his side some of his celebrated *orvietano*, he placed a portion of it in his mouth and swallowed it. Instantly the effect of this wonderful medicine was to make him vomit the poison he had taken; and he stood before the spectators in the full enjoyment of his health. The populace applauded him highly for the indisputable proof he had given of his great talent. And he then invited many of the most learned of those present to accompany him to his house, and he there showed them his dispensary, as well as his collection of many antidotes, and among them a powder made from little vipers, a powerful remedy in curing every sort of fever, as he proved by different experiments he made on people of quality and virtue, all of whom he cured of the fevers under which they were suffering. He also exhibited a wonderful balsam he had invented, which cured with great rapidity all bruises and wounds, as well as burns and scalds of every description. The said Generoso Marini has also great skill in drawing teeth, in which he exhibited an extraordinary dexterity. But that which most distinguished him was his wonderful power in restoring many persons to health who were suffering from divers incurable diseases. In consequence of the rare talent exhibited by Signor Generoso Marini, and as a proof of our love and respect for his wisdom, we have resolved by the authority placed in our hands publicly to reward him with our diploma, so that he may be universally recognized, applauded, and respected. In witness whereof we here set our hands and the public seal of the municipality of Ferrara.

Well might Molière's quack say: *O grande puissance de l'orviétan!*

The *Journal of the American Medical Association* has recently taken occasion to call attention to a misunderstanding of the word "cure" as used by German, Italian, and, we may add, by the older physicians who wrote in Latin. The trap lies in the word *kur* or *cura*, which does not mean restoration to health, but care or treatment. An Italian writer is quoted as having said that he had cured ten typhoid patients within a given period and six of them died. What he meant to say, of course, was that he had treated ten cases. In the same way, when we read that some distinguished person has gone to Ems or Marienbad for a *Kur*, what is intended to be conveyed is that he has gone to the health resort to go through a course of treatment there. When Hahnemann enunciated his famous, but by no means original, principle, *Similia similibus curentur*, he meant that like things should be *treated* by like. The aphorism was for a long time almost universally cited *Similia similibus curantur*, and translated Like is *cured* by like—a very different thing.

THE NEW BUILDINGS OF GUY'S HOSPITAL MEDICAL SCHOOL.

As a preliminary to the formal opening by Mr. A. J. Balfour next week of the new buildings of Guy's Hospital Medical School, a number of representatives of the medical and lay press were shown over the buildings on May 27th. The opportunity was taken of indicating the important part played by medical schools attached to hospitals in the advancement of research and every department of medical science, and the hope was expressed that wealthy benefactors would come to the aid of medical schools in London—and that attached to Guy's in particular—in the way that is frequently the case in the big towns of the country.

After ten years' uninterrupted labour the work of rebuilding the medical school of Guy's Hospital has been completed at a cost of over £100,000. Of this sum no less than £77,000 had been found by the generosity of the governors and other friends of the school, while the members of the staff, in order that the ever-increasing cost of maintenance may be met, have voluntarily resigned a great part of the income formerly paid to them from students' fees. What is needed is that the outstanding debt of £23,000 upon the building should be paid, and that an endowment of £200,000 should be raised for the establishment of lectureships and research fellowships.

The Main Block of New Medical School Buildings.

The new buildings are divided into three main blocks. In addition, the old Department of Anatomy has been rebuilt and an extension added for the teaching of operative surgery. The old biological laboratory has been refitted throughout. In the main block there is to the left of the spacious entrance hall, containing busts of famous men associated with Guy's, a students' laboratory for physiological chemistry, and a large lecture theatre with accommodation for 400. To the right are the research laboratories of the demonstrators, and in the basement numerous store-rooms and class-rooms, and a room fitted with *x*-ray apparatus.

On the ground floor is the Wills Library, and a small museum of Guy's antiquities. The Gordon Museum is beyond this, and is of considerable extent, being divided into four bays or apartments by a central staircase. The shelves afford accommodation for nearly 10,000 specimens, and here are housed also the famous collection of wax models made by the late Mr. Towne. Adjoining the museum are a large lecture theatre, fitted with an epidiascope, the curator's room, and other small rooms and laboratories.

On the first floor are the students' histological laboratory, the research laboratories of the lecturer in physiology, the offices of the medical school, and the committee-room of the staff. The second floor accommodates the department of physics, and comprises a large students' laboratory, a dark room for the study of optics, class-rooms, private laboratories, and a large lecture theatre. The third floor contains the students' chemical laboratory, with a balance-room and a research laboratory for the demonstrators. There is a smaller laboratory for chemical work of the department of public health.

The new Dental Block occupies buildings three stories high surrounding a central courtyard. Waiting rooms, offices, and a laboratory for probationary work occupy the ground floor. On the first floor are the students' and pupils' mechanical laboratories; the latter has accommodation for a hundred pupils. The metallurgical laboratory, in which the appliances are operated by electric power, are also on this floor. The conservation room extends over the whole of the second floor, and contains eighty pump chairs of the most modern type.

The third of the new blocks provides accommodation for the department of pathology in a building five stories high. Here are lecture theatres, laboratories for the teaching of morbid histology and bacteriology, pharmacological laboratories, private research laboratories, and accommodation for experimental work in pathology. No part of this building is used for the routine pathological work of the hospital, but the whole is devoted to teaching and research, the routine work being carried on by other workers in separate laboratories at the expense of the hospital. A sum of £2,000 has been devoted to the equipment of this department, which was erected at the expense of an anonymous donor, and presented to the school this year, free of charge.

A comprehensive view of this great building scheme, obtained from the roof of one of the new blocks, gave some insight into the courage of the staff of the Medical School in embarking upon and bringing to completion so large a scheme for the advancement of medical education. It is to be hoped that their efforts will meet with the support and encouragement they deserve.

DR. WILSON, who perished with Captain Scott on the return journey from the South Pole, left estate valued at £965.

PROFESSORA RINA MONTI has been appointed, by a unanimous vote of the teaching staff, director of the School of Pharmacy in connexion with the University of Sassari.

THE Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India, No. 57, 58, and 59, deal with the anatomy of the mouth parts of biting flies, and with the flagellate parasites of different genera found in insects. Captain Patton's paper on the latter subject is entitled "Studies on the Flagellates of the Genera Herpetomonas, Crithidia, and Rhynchoidomonas." Captain Cragg contributes the papers on the mouth parts of the biting flies. His first paper (No. 58) deals with studies on the mouth parts and sucking apparatus of the blood-sucking diptera (Orthorrapha). His second (No. 59) is on *Lyperosia minuta* (Bezzi). These papers are very interesting but, of course, somewhat technical. Those interested in the subjects can consult the originals in the library of the British Medical Association.

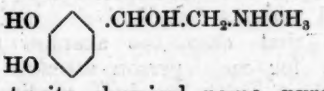
British Medical Journal.

SATURDAY, MAY 31ST, 1913.

RECENT PHARMACOLOGICAL RESEARCH.

THE Annual Oration delivered before the Medical Society of London by Sir William Whitla, and dealing with the trend of thought in recent pharmacological research, is printed in full upon another page. It summarizes the present position and future prospects of pharmacology with all the charm and skill that we have learnt to expect from that able orator its author. To a pharmacologist the Oration is delightful, because it proves a willingness on the part of an eminent physician to go at least half-way to meet him. Eminent physicians there are in plenty who hold and act upon the negative and chilly view that only a few drugs, and those mostly old favourites, are worth using, and who are apt to exhibit sodium bicarbonate in small doses when called upon to prescribe for the majority of the ills they have to treat. To a chemist, also, the Oration is not less delightful, for in it he finds the science of chemistry, organic and synthetic, once more exalted to the position to which he fondly believes it entitled, while due credit is given to the pioneers who have led the way in this most complex of sciences, and the sympathy they deserve is measured out to their errors.

As Sir William Whitla points out, it is to the synthetic chemists on the one hand, and to the investigators of vaccine-therapy and opo-therapy on the other, that pharmacology owes its rapid progress during recent years. It may be said, perhaps, that these two groups of workers attack its problems from their opposite ends. It is the function of the opo-therapist to find out what is the effect of any given animal extract upon the body, and to prepare it in a state of the greatest purity. It is the business of the organic chemist to analyse this purified extract, to learn its structural formula by breaking it down into simpler organic compounds of known composition, and then to prove the correctness of his work by the synthesis of the active principle of the extract he set out to investigate. The first of these organic syntheses to be performed, one that is familiar to every medical student who takes up the study of organic chemistry, was made by Wöhler in 1828, when he formed urea synthetically by warming a solution of ammonium cyanate in water. As a single quite recent example of the progress in pharmacology that has been made possible by the co-operation of the opo-therapist and the organic chemist, may be quoted adrenalin. Its physiological and pharmacological properties have been long known to us, and it is a drug that is in daily use. As the result of elaborate researches, the organic chemist has been able to show that its structural formula is—



corresponding to its chemical name, pyrocatechinethanolmethylamine. As the result of an immense amount of experimental work on its congeners and derivatives, it is now possible to refer its physiological activity to certain of the atomic groups that it contains, and to their relation to other of its atomic groups. The greater part of its activity is due to the presence of an amino group (—NH_2, or rather —$NHCH_3$) separated from a benzene nucleus by another group (—$CHOH.CH_2$—); this activity is increased by the two hydroxyl groups (—OH) in the ortho-position to one another in the benzene nucleus, and is still further increased by the third hydroxyl group in the chain connecting together the benzene ring and the amino group.

Complex formulae and statements such as those just given must seem highly speculative or frankly incredible to many, particularly to those who are unfamiliar with the steady progress in experimental pharmacology and the vast amount of work that has been done in it during the last twenty years, or, to put back the date to the starting-point mentioned by Sir William Whitla, since the researches of Crum Brown and Fraser on methyl-strychnine were published in 1868. But it is impossible for any one who is acquainted with the data furnished by the organic chemist and the experimental pharmacologist, and who is in a position to trace the development of the ideas or theories that underlie their work, to doubt either that such formulae and inferences are true or that the work is being carried out along the correct lines. New drugs with properties foreseen and calculated are being put on the market daily; and if the calculations do not always come true—it would be idle to pretend that they do—if unforeseen secondary actions of the new drug may vitiate the required result, the fact merely illustrates the limits of chemical knowledge, and has often proved to be of service in the long run by stimulating further research.

Sir William Whitla, as we have said, has earned the gratitude of organic chemists and pharmacologists by showing how much the world owes to their tested synthetic drugs. In the latter part of his Oration he expounds the influence that Ehrlich's side-chain theory has exercised in the development of our views on the constitution of living matter and its *modus vivendi*, and he discusses the bogey, as he calls it, of catalysis and cell enzymes. Here we find ourselves face to face with questions as complex as any one can be called upon to answer; as Sir William shows, they must be left in suspension until the time when our knowledge is far more complete than it is at present. He draws particular attention to the all-pervading influence of the force known as chemiotaxis in the mechanical operations of the living cell, and points out how closely living nature can be imitated by solids and liquids of carefully adjusted surface tensions left to the influence of the osmotic forces that play between their surfaces. As to the future of therapeutics, that may safely be left to the future itself, so long as the science continues to follow the guiding lines upon which it now travels.

THE NEW DIPHTHERIA ANTITOXIN.

MUCH interest has been created in Germany recently by Professor von Behring's announcements with regard to the bacterial emulsion which he has devised with the object of producing immunity to diphtheria lasting for several months. More than one injection is necessary, and the active protecting bodies are produced in from three to five weeks after inoculation. Von Behring has himself published recently the results of some new investigations

relative to the toxicity and immunizing power of this prophylactic vaccine.[1] As has already been stated, the product is an emulsion of virulent diphtheria toxin with antitoxin in such proportions that the mixture is innocuous to the guinea-pig.

It had always been supposed—for toxin-antitoxin combinations are no new departure—that if the guinea-pig could withstand the injection of a mixture in a fixed proportion, other animals, including man, would likewise prove resistant. This, however, proves not to be the case. Behring has found that mixtures non-toxic for guinea-pigs may, in the monkey and the ass, produce marked febrile reaction with the formation of antitoxin in large quantities. The reaction in man is less violent, but varies considerably with age. In children between 4 and 5 it is far more marked than in newborn infants. Of great practical importance also is the fact that so-called "carriers" and individuals whose blood reaction, as expressed in units of antitoxin, proves them to have been carriers of bacilli at some period of their lives, have been found to be hypersensitive to the mixture and very readily produce large quantities of antitoxin after injection. One such case is reported from Marburg, in which $\frac{1}{16}$ c.cm. of the injection produced 600,000 antitoxin units, where 250 units would have sufficed to ensure immunity. The case is very noteworthy, for a second child was for the first time passively immunized from it—that is to say, it was immunized with an anthropogeneous or homogeneous, as opposed to a heterogeneous serum, and it was found that the immunity thus obtained was of far longer duration than can be obtained with the horse serum antitoxin now in common use. The great importance of such a discovery scarcely needs emphasis, for not only has the immune period been prolonged, but the well-known side-effects of heterogenetic serums have been eliminated.

Behring states that he is ready to place his antitoxin in the hands of clinicians for the purposes of research to ascertain the ideal dosage—that is, one in which there is a minimal local and febrile reaction with a maximum of antitoxin production. The experimenters must also undertake to place on record the antitoxin content of the blood both before and after inoculation, and are requested to employ it especially in persons exposed to infection, and for the inmates of asylums, orphanages, and prisons who remain under observation for considerable periods of time, and among whom the disease is often endemic. He recommends inoculation (1) among diphtheria-carriers to determine the destruction of naso-pharyngeal bacilli as rapidly as possible; (2) to produce a prolonged immunity; and (3) for the manufacture from highly immunized subjects of an anthropogeneous serum, both for passive immunization purposes, and for the cure of the actual disease.

Professor Schreiber, who controls the Magdeburg Krankenhaus, published his own results, which supported this pronouncement, in the following number of the same journal. He states that the remedy is absolutely harmless and fully capable of producing immunity.

The time has been too short as yet to establish definitely that subjects inoculated do not take the disease, but a communication from the surgical side of his institution has reached Behring to the effect that no inoculated children had been infected to date, or could be proved to be carriers, although an epidemic of the disease was raging in the wards at the time.

[1] *Deut. med. Woch.*, May 8th. See also the issues of May 15th and 22nd.

In the last number of the *Wochenschrift* further observations are chronicled. Professor Zangemeister, Obstetric Physician at the Magdeburg Hospital, states that according to Prussian statistics the total infantile mortality from diphtheria is 0.58 per cent., so that it is important to establish immunity as rapidly as possible after birth. For this reason newly-born infants have been inoculated with the antitoxin—in some cases the pregnant mothers only, with a view to minimizing possible ill effects at a critical age. Blood determinations were not made in these cases for obvious reasons, but it will be interesting to follow the history of these protected children in ensuing years. We may rest assured, however, that inoculation of infants is not only possible but advisable, because, as already stated, the reactions in them are less violent than at later ages, and are constant.

Behring's assistant, Dr. Viereck, in the same journal, describes a method for the practical determination of the antitoxin content of the blood, and maintains that if a prolonged period of immunity be desired a comparatively energetic reaction to inoculation should be aimed at in order that a large amount of antitoxin may be produced. By this he means a pronounced local infiltration at the site of injection, which may, but need not, be accompanied by fever. Without such a local reaction, he states, there is probably an inadequate production of antitoxin. Behring is convinced that, just as the dose for guinea-pigs can be accurately gauged, that for the higher animals and man is also constant, provided that the special factors above indicated do not exist in the individual to be inoculated. The adult is about 100 times more susceptible than the infant, and Behring is of opinion that this hypersusceptibility rests solely on a preceding infection in the case of the former, an infection which but few escape, and which may have run its course without producing any of the classical symptoms of the disease.

TEMPORARY ABSENTEES.

THE Memorandums issued by the Insurance Commissioners in England with regard to the provision of medical benefit to temporary residents have caused a great deal of dissatisfaction and not a little perplexity.

As to the perplexity, its first source is that the Commissioners should have issued Memorandum 161 on Thursday and Memorandum 159 on Friday, for 159 is only 161 printed in different type on larger paper with some additional paragraphs, yet, if the numbering means anything, the longer memorandum in larger type must have been in existence before the shorter was extracted from it. It looks rather like waste of insurance funds; but the more important matter is that, after reading 161 and 159, or 159 and 161, according as the student prefers the chronological or the numerical order, he is still left in some perplexity, some doubt as to what after all the Commissioners in fact mean.

The calculations are based on the sum of 9s. a year available for medical attendance and drugs (medical attendance, 6s. 6d.; tuberculosis, 6d.; drugs, 1s. 6d.; drug suspense fund, 6d.) in respect of every insured person, and on the assumption that one-third of the insured persons fall ill during the course of a year. In that case the average rate of remuneration for each person attended will be 9s. multiplied by 3, or 27s. for both medical attendance and drugs. This sum of 27s. is called the "case

value." It is a quite hypothetical value, and the Scottish Commissioners estimate it at one-third less, 18s., and it may very well turn out that even this is too high. But, taking the English Commissioners' 27s. a head a year as the "case value," we are then told that "the proposal is therefore to look to the cases of 'temporary residents' who actually require treatment, and to the circumstances of the Committee areas whence they respectively come, and to transfer from each Committee's funds to the Central Fund in respect of each temporary resident receiving treatment a sum calculated on the principle illustrated above by reference to the actual degree of sickness in the area of his usual residence. In this way no Committee will suffer a reduction of their funds by way of transfer at a higher rate than the actual rate of remuneration in their area."

These involved sentences have given rise to many difficulties of interpretation, and the failure to state the position clearly has caused the suspicion to arise in some quarters that the paragraph was deliberately intended to be obscure. We are far from accepting this suspicion, and believe that even without Sam Weller's pair o' patent double million magnifyin' gas microscopes of hextra power it can be perceived to be capable of only one meaning, and that it is the same as that expressed in the clear and precise paragraphs of the Scottish Commissioners, who have also issued a Memorandum 159/I.C. The draftsman of the Scottish Memorandum not only had a command of the English language denied to his southron colleague, but was endowed with sufficient imagination to foresee the difficulties of the reader and the frankness to forestall them. As already noted, the Scottish Commissioners base their calculations on the assumption that the number of cases of illness per annum will be "equal to half the total number of insured persons," so that "the average rate of remuneration in respect of each case of illness will be 9s. multiplied by two, or 18s., and this will be the 'case value' rate for that area." What the Scottish draftsman says is this: "The proposal is, therefore, to look to the cases of illness among 'temporary residents' which actually require treatment, and to the circumstances of the Committee areas from which the temporary residents respectively come, and to transfer from each Committee's funds to the Central Fund in respect of each case of illness of a temporary resident so receiving treatment a sum calculated in the manner indicated above by reference to the 'case value' rate in the area of his usual residence. Thus the contribution by an Insurance Committee whose 'case value' is 18s., and which has 20 insured persons treated outside its own area, will be £18."

The Scottish Commissioners again show their political wisdom by frankly admitting that for the current year the scheme "can only be adopted in so far as the doctors and chemists under the Act give their consent. The scheme is not included in the agreements signed by the doctors and chemists." The English Commissioners did not state this fact. They left the doctors to find it out for themselves. It was, of course, very soon found out, but the want of frankness in failing to state it has contributed to increase the irritation which the proposed deduction from the minimum remuneration promised has produced.

The plan would work out in practice as follows: If an insured person proposed to go away for three or four weeks for a holiday or to convalesce, he would apply to the Insurance Committee of the area in which his home is for a green voucher. If he got through his three or four weeks at the seaside or health resort without needing medical attendance the matter would end there; he would tear up his green voucher and return rejoicing to his home. If, on the other hand, he found himself in need of medical treatment when at, say, a seaside resort, he would hand his green voucher to the doctor of his choice, who would retain it and enter upon it particulars of the services rendered. When the temporary resident returned home the seaside doctor would send the voucher to the Insurance Committee of his own district. The voucher would be examined by the Local Medical Committee. When this and all similar vouchers had passed that ordeal the Insurance Committee of the seaside district would notify the Insurance Commissioners the total amount of the local claim on the Central Fund, the claims being assessed according to the tariff appended to the Memorandums.[1]

The Insurance Commissioners would then have two duties—first, to fill the pool (the Central Fund), and, secondly, to empty it. To fill the pool they would ascertain the case value of each insurance district which had during the year supplied temporary residents to other districts. This sum multiplied by the number of temporary absentees would yield an amount with which the Local Insurance Committee of the inland town would be debited. The total of all these sums so debited would form the central fund or pool. This total would be compared with the total amount of the several claims upon it from all the districts which had received green vouchers. If the two sums should exactly correspond, the local seaside insurance committees would be credited with the full amount of their claims, and the doctors would be paid in full according to the tariff. If the total amount in the pool fell short of the total claims upon it the Commissioners would declare a dividend; for instance, if the total claims on the green vouchers amounted to £10,000 and the total payments into the pool in respect of the case values amounted to £9,000, the seaside doctors would receive nine-tenths of the amount of their claims according to the tariff. If, on the other hand, the total of the claims remaining the same, the central pool amounted to £11,000, the seaside doctors would receive eleven-tenths of their claims. The scheme, it will be seen, does not attempt to deal with the insured persons as individuals, but in the bulk, nor does it attempt to deal with each area separately, but again in the bulk, deficiencies in one district being set against excess in others, on a principle well recognized in all insurance business.

Under the English scheme, if a temporary resident in a seaside resort continued ill after a period of three months from the beginning of his temporary residence, he would then be transferred to the Insurance Committee of the seaside town as a permanent resident, and the coast doctor from that time would be paid not by fees for attendance, but at the ordinary capitation rate (7s. per annum). In Scotland the period is six weeks, not three months, but it counts not from the beginning of temporary residence, but from the beginning of medical attendance whilst at the seaside town.

The term "seaside town" is used for convenience, but, of course, the doctors in every insurance area, seaside or inland, rural or urban, would be paid on the same attendance basis for any temporary residents within their bounds, so that there might, or perhaps would, be in most cases both income and

[1] SUPPLEMENT to BRITISH MEDICAL JOURNAL, April 19th, p. 335.

outgo, the balance no doubt being in favour of the seaside and rural areas.

The Scottish Commissioners state that "the new system is put forward by the Commissioners because it is equitable as between town doctors and chemists on the one hand, and doctors and chemists in holiday and health resorts on the other," but there are, in fact, two questions of equity involved. The first is whether it is equitable to make any deduction, and the second, granting that a deduction should be made, whether the amount and method of deduction and the method proposed for the distribution of the fund so formed are equitable. With regard to the second point, we are disposed to agree with those members of the Association who have expressed the opinion that if the justice of making any deduction be acknowledged, the method proposed for forming and distributing the central fund is worthy of trial upon the understanding that should experience show it to operate inequitably it will be amended.

The equity of making any deduction at all from local insurance funds for this purpose is another matter. The doctors who have accepted service under the Insurance Act have undertaken to give medical attendance and treatment throughout the year or the whole period for which their contracts run; they are bound to give personal service or to provide a sufficient substitute; they never know when they may be called upon; and their establishment charges must be based upon a full year. Moreover, there is the distinct undertaking on the other side—that is, on the part of the Government—that the rate of 7s. for each insured person on the list would not be diminished. The central fund for temporary absentees is to be formed by making deductions from this minimum amount, or, rather, from the minimum 9s. including drugs and appliances. It is no answer to say, as is said, that the doctor is relieved of the responsibility for giving medical attention to the temporary absentee during the period of his absence. The doctor has entered into a contract to give his attention and must make his arrangements accordingly. If by a voluntary act one party absents himself for a certain period to suit his own convenience, the voluntary absentee may equitably be called upon to take the consequences, and the State Sickness Insurance Committee has, therefore, expressed the opinion that the Regulations should be so amended as to provide that medical benefit shall not be understood to include medical attendance and treatment on insured persons who temporarily change their residence for holiday or health purposes.

DR. ROBERTS THOMSON.

Last week Dr. Roberts Thomson, who is well known to members of the British Medical Association by the great services he rendered to it when President in 1891 and Chairman of its Council from 1899 to 1902, was presented with the honorary freedom of Bournemouth. The honour was the greater, inasmuch as there had previously been chosen only four honorary freemen, of whom the first was Earl Roberts. The resolution of the town council conferring the freedom stated that it was given as the highest mark of esteem within its disposal in recognition of the eminent services rendered by Dr. Roberts Thomson to the borough, and of the splendid example of self-sacrificing citizenship which he had displayed during the whole period of his residence in Bournemouth. The resolution continued as follows: "The council acknowledge with gratitude the prominent and leading part he has taken in the founding, promotion, support, and administration of the local hospitals, whose beneficent mission has been largely helped by his munificent contributions, personal service, and judicious counsel; his services in connexion with various phases of educational work, and particularly as the chairman of the governors of Bournemouth School; his able and impartial conduct as a justice of the peace for the county borough of Bournemouth and for the county of Southampton; his successive services as county councillor and county alderman; and the loyalty, patriotism, and military enthusiasm which he displayed as an officer of Volunteers, rising by successive steps to the command of the 4th Volunteer Battalion, and now honorary colonel of the 7th Battalion of the Hampshire Regiment. Such a record of citizenship, supplemented as it has been by private munificence of catholic and unstinted character, constitutes a unique and honourable record which entitles him to the sincere and lasting respect of every burgess, and justifies the highest form of official recognition." In speaking to this resolution, Alderman Mate referred in particular to Dr. Roberts Thomson's services to the cause of education in Bournemouth, Alderman Beale to his work in connexion with hospitals, and Alderman Robson to his military services. The presentation, made by the Mayor, consisted of the text of the resolution enclosed in a massive silver casket adorned with an enamelled minature of the recipient, with the arms of the town, a trophy of the King's colours, and the regimental colours of the 7th Hants, and with views of the Victoria Hospital and the Bournemouth School. Dr. Roberts Thomson, in acknowledging the presentation and election, said that during his life at Bournemouth, extending now to nearly forty-seven years, he had seen enormous progress and had from the first recognized that the responsibility of the medical profession was serious in amount and would be far-reaching in its results. In his work for education he had been inspired by the thought that the community was engaged in a warfare against waste—waste in physical life through sickness and disease and waste in mental life, for of all causes of waste ignorance was the most prolific. After mentioning the growth of the Bournemouth School, he referred to the approaching opening of the Municipal College, and expressed his belief that the wisdom of this development of art and technical work would be fully justified. In conclusion, he thanked the Council for associating Mrs. Thomson's name with his own.

ENDEMIC FEBRILE OUTBREAKS IN INDUSTRIAL SCHOOLS.

A report by Dr. McGowan and Dr. McNeil issued recently by the Scottish office deals with a problem which has perplexed the authorities in charge of industrial and reformatory schools for a good many years. In certain of these institutions mysterious outbreaks of febrile illness have occurred from time to time. An alarming and malignant character has been given to these outbreaks by the occurrence of fatal cases in which death took place within a few hours of the onset of symptoms; and in not a few instances boys going to bed in apparently perfect health have been found dead in bed in the morning. These fatal cases, however, form only a small proportion of the total cases of illnesses which, though differing in severity, belong, it seems fairly certain, to the same group. The new report is not by any means the first published account of these institutional illnesses. From 1886 onwards, descriptions of these outbreaks have appeared from time to time in medical journals, and in 1897 a Blue Book was published giving the results of Dr. Sidney Coupland's investigations into similar cases at two Lancashire schools. Drs. McGowan and McNeil now trace in full the history of an industrial school at Tranent, near Edinburgh, which has been marked by particularly virulent and extended outbreaks of this character; and at the same time they have been at pains to collect all the

available records from other schools of this kind. From this point of view alone the report is of value, as it collects and brings under review all known data and facts concerning these illnesses. The authors divide the illnesses into three clinical groups: Cases of acutely fatal illness, of pneumonia, and of febricula, a term used by Coupland in his report. From the *post-mortem* and clinical evidence obtained, the definite conclusion is drawn that all the cases are examples of pneumonia, but of pneumonia in a "distorted" form. Two groups are formed: the first of fulminant, and the second of irregular, pneumonia. The cases in the second group are examples of latent or abortive pneumonia. Like previous observers, they find no evidence of contagion; and they also record the striking fact that these illnesses are confined to the boys, the resident staff being completely exempt. They make the further hypothesis that these forms of atypical pneumonia, endemic in certain industrial schools, owe their irregular character to the pre-existence in the boys of a morbid diathesis, which in the fatal cases resembles that of status lymphaticus. This hypothesis is founded on the record of enlargement of the thymus and hyperplasia of other lymphoid tissues in a significant number of the necropsies made at Tranent. The report gives a full account of the sanitary and general environment of the boys, and the conclusions are controlled by similar observations at a neighbouring industrial school which is free from illnesses of this character. The authors show great reserve in expressing any opinion as to unhealthy conditions that might explain the prevalence of this peculiar form of pneumonia. The school at Tranent actually shows a superior record as regards zymotic and tuberculous disease over the control school; and no gross departure from the usual hygienic and sanitary standards could be discovered. But in some respects the environment was found unsatisfactory—in the inadequate clothing of the boys and the insufficient heating of the dormitories in winter, and in insufficient allowance of air space in the dormitories and recreation rooms. The hypothesis as to status lymphaticus is interesting, but further observations will be required before it can be regarded as established. If it should prove correct, it may very well lead to some extension of knowledge of this obscure condition. If it is to be held as accounting for the severity of outbreaks of this nature in industrial schools, it would seem that it must be present there in endemic form, and predispose to the occurrence of peculiar types of pneumonia, some of them fulminant and rapidly fatal.

THE LONDON INSURANCE COMMITTEE AND ITS FUNDS.

IT will be noted at the last meeting of the London Insurance Committee it was proposed that the money due to the medical profession in respect of the 400,000 insured persons in London who have not chosen a doctor should be distributed among the doctors on the panel, and a discussion took place as to the most equitable method of distribution. The Chairman of the Committee moved a resolution in favour of the money (£34,000) being distributed in proportion to the number of accepted persons on each doctor's list, but Mr. Rockliff took exception to the legality of this, and on the Chairman justifying it by Circular 10/I.C. of February 18th, Mr. Rockliff expressed the opinion that the distribution could not be allowed to take place on the strength merely of a circular of the Commissioners. On this the Chairman withdrew the motion, and the whole matter is to be considered by a special meeting, doubtless after consultation with the Commissioners. The legal aspect of the case would appear to be that, according to Section 15 (2) (*d*) of the Act, every Insurance Committee must adopt a system which will secure that the insured persons who, after due notice, have failed to make any selection, or who have been refused by the practitioner whom they have selected, shall be distributed amongst the several practitioners whose names are on the list. That is to say that all insured persons in the area, and therefore all the money payable on their account, must be distributed amongst the doctors on the list. Many Insurance Committees have already distributed or arranged to distribute the money in hand in respect of persons who have not selected a doctor, instead of acting in strict accordance with the provisions of the Act and distributing the patients in respect of whom the money has accumulated. It seems so obvious that no method of distribution of patients by any Committee can be as satisfactory as the selection of doctors by the patients themselves that we should have thought that any method which would delay the distribution of insured persons amongst the doctors, and would give them further time to make their selection, would be welcomed by representatives of such persons on Insurance Committees. There can be no doubt that the money belongs to the doctors already on the panel. The only way in which any capitation fee can be made to pay doctors for contract medical work is by the fees from all the insured persons being paid to them, and not merely those from the persons who, because they were ill, or because they thought they were likely to be ill, took the precaution of choosing a doctor. This seems so elementary that we trust there will be no undue delay in distributing this money.

THE DECLINING BIRTH-RATE.

BAGEHOT tells the story of an indifferent public speaker who, when at a loss what to say next, was accustomed to begin, "Mr. Gladstone, gentlemen"—whereupon his voice was drowned in cheers, and he had time to collect his thoughts. It is possible that some proportion of the pamphlets, speeches, and books dealing with the declining birth-rate and "race suicide" owe their origin to similar considerations, and it is at least certain that they are of very unequal merit. In the production of this literature Germany takes a leading place; three treatises of some size by Drs. Wolf, Borntraeger, and Marcuse[1] have recently appeared, and we have lately received a pamphlet by Dr. Hermann Rohleder of Leipzig on the same topic.[2] Dr. Rohleder is of opinion that a declining birth-rate is a necessary consequence of increasing civilization, and that those who are of a different opinion are merely displaying their incomplete scientific culture. He energetically combats Wolf's theory that the birth-rate tends to vary with the prevalence of certain religious beliefs, and pours scorn upon the measures suggested by Borntraeger—some of which do indeed appear to argue a degree of confidence in the powers of a bureaucracy which could hardly exist outside of Germany—to arrest the decline. Rohleder contends with some show of truth that race suicide is not a pressing question so long as a population even with a declining birth-rate continues to increase; but he is on more doubtful ground when he argues that declining fertility necessarily must imply superior quality of the offspring, since the larger the family the less adequate the provision which can be made by the parents for their children. This is, indeed, the crux of the problem. Given a fixed income anywhere near the poverty line, it is obvious that a parent can provide better housing, nourishment, and education for two children than for five. Do the environmental advantages which thus accrue to the diminished numbers of the offspring outweigh the disadvantages of a slackening of the intensity of natural selection operating upon a larger number of children, some of whom must be

[1] Wolf, J., *Der Geburtenrückgang-Die Rationalisierung des Sexuallebens in unserer Zeit*, Jena, 1912. Borntraeger, J., *Der Geburtenrückgang in Deutschland, seine Bewertung und Bekämpfung*, Berlin, 1912. Marcuse, J., *Die Beschränkung der Geburtenzahl ein Kulturproblem*, München, 1913.

[2] Rohleder, H., Der Geburtenrückgang- eine Kulturfrage (from the *Berliner Klinik*, March, 1913), pp. 35.

"weeded out"? Again, are the effects upon the health and morals of a nation of the employment of artificial methods of restricting fertility so prejudicial as to counterbalance the individual advantages? Neither of these questions can be answered offhand, and many persons who have given a good deal of attention to the subject differ fundamentally with respect to them. We believe that the medical profession as a whole is by no means agreed upon the matter, and it would be very undesirable for us to propound in these columns a solution of the problem which must, in the present state of knowledge, be tentative and subject to revision. We do, however, think it fitting to remark that various writers on this topic—Dr. Rohleder is by no means an exception—have expressed themselves with a confidence that the knowledge at command by no means warrants. The attainment of definite knowledge will doubtless require the co-operation of scientific workers in different fields, and at present writers on the subject might advantageously adopt as a motto the words of Helmholtz: "The confession of actual doubt is better than the delusion of dogmatic certainty." As usually happens, this caution will be least regarded where it is most required—namely, on the platform and in the popular press.

A PRINCELY PRACTITIONER.

THERE have been sovereigns who found a pleasure in practising surgery on the bodies of their lieges. James IV of Scotland had a passion for surgery, especially for the extraction of teeth. Henry VIII is said by Froude to have been the best physician of his realm, and he is credited with an ointment for the cure of ulcers of the legs. Peter the Great was fond of operating, but little seems to be known as to the fate of his patients. Edward VII was an Honorary Fellow of both Royal Colleges, but as far as we are aware he fulfilled the hope expressed by Lord Rosebery—himself an Honorary Fellow of the College of Surgeons and the descendant of a surgeon—that he would not practise the art of healing. It has often been stated that the ex-Queen of Portugal is a fully qualified doctor, but this is a mistake; her Majesty takes a great interest in medicine, but has never been formally admitted *in nostro docto corpore*. In the House of Wittelsbach, however, there is what may be called a medical tradition. Several princes of the blood royal of Bavaria have gone through the whole course and graduated doctors of medicine. The late Duke Karl Theodor was well known as an ophthalmologist, and practised at Munich and at Meran. Prince Ludwig Ferdinand, who also is a real not an ornamental doctor, spends his time in the practice of his chosen profession. He not only treats his patients without fee, but also supplies medicines gratuitously, while to the very poor he gives help in money. It is stated that his practice has grown to such an extent that the vast rooms of his palace are inadequate to accommodate the patients who wait their turn to consult the princely oracle. The Prince, therefore, has had to seek a larger stage for his activity. He first looked for a house which could be transformed into a clinic, and not having found any that was hygienically satisfactory in the older parts of Munich, he asked the Minister of Instruction to place at his disposal some rooms in the university buildings. The Minister hastened to set aside for him various rooms of a clinic that was not in use, and thither the Prince transferred his outpatient department. This concession roused the profession of Munich, which had already begun to look on the work of their august colleague with jealousy, to a vigorous and unanimous protest. The medical faculty, making itself the interpreter of the general feeling, addressed a remonstrance to the Minister, urging that this act was illegal, as the Prince is not a university teacher. The Minister replied that although the Prince is only a private practitioner, his work is so beneficial to the people that it well deserves such modest aid from the Government as the assigning to his use of a few rooms in a public building. The medical faculty is not satisfied, and continues to protest, but the Minister refuses to withdraw from the position he has taken up. Meanwhile the Prince keeps himself apart awaiting the issue of the controversy. There the matter rests at present. We confess that, while admiring the self-sacrifice and humanitarian zeal of the Prince, our sympathies are entirely with the doctors. Philanthropy is an excellent thing, but the virtue should not be exercised to the detriment of a particular class of the community, especially when that class is one that more than any other devotes itself, regardless of its own selfish interests, to the public welfare. The conception of a rich man ministering to the sick out of pure benevolence is grand, no doubt, and has found a beautiful embodiment in Balzac's *Médecin de Campagne*. But princes and millionaires who undertake the drudgery of medical practice purely from the love of the work are few indeed, and the profession at large will always have to shape its life in accordance with the principle of the French *émigré*, who was met by a noble friend when trundling a costermonger's barrow, *Faut vivre*.

A NURSING HOME FOR PATIENTS OF LIMITED MEANS.

THE experiment which is being made in Edinburgh in the establishing of a new nursing home for patients of limited means (to which attention is directed in another part of this JOURNAL, *vide* p. 1185) has evoked considerable local interest, and it will probably excite discussion much more widely now that the home has actually been opened. The principle upon which the home has been founded is that the existing hospital and nursing-home system fails to provide suitable accommodation for people of limited means who are on the one hand not able to pay the large fees asked by the ordinary nursing homes and who on the other hand do not wish to receive for nothing services for which they are able to pay a small fee. Physicians and surgeons have always been ready to reduce their fees or indeed in many cases to forego them altogether in such cases; but there remained the difficulty of the home charges. To many in Edinburgh it seemed that if the initial cost of the home and its furnishing and equipment could be met by public subscription, it would be found possible to carry it on as a self-supporting institution and yet not charge fees which would be outside the resources of people of limited means. Dr. Chalmers Watson deserved to the full the encomium which Lord Balfour of Burleigh passed upon his organizing and constructive work at the opening ceremony last week, for, since the inception of the scheme in 1910, he has been the heart and soul of the undertaking; and it is largely to his energy and skill that the result is due. Lord Dunedin, too, who presided at the opening of the home, is entitled to feel some sense of reward for the time and labour he must have given to the cause which he has so ably championed. It remains to be seen how it will all work out; but the success of the smaller home which has been in existence for some years in Edinburgh (Rutland Square) is a good augury for the new and larger institution, more especially as the services of Miss Shaw, the matron, are being retained. The crux of the experiment will be whether the fees received will be sufficient to meet the working expenses and the necessary repairs and possible new developments to satisfy the ever advancing requirements of modern medicine and surgery. This will greatly depend on the extent to which the twelve private bedrooms at three guineas a week each are occupied; for, doubtless, the management is relying upon them to help to defray the cost of the cheaper beds at one and two guineas. It will be necessary for the home to be fairly well filled constantly to make it a success; but those who have studied the local circumstances

closely do not dread this part of the test. The physicians and surgeons who send patients into the home—and its doors are open to the patients of any medical man who wishes to give them treatment himself or to obtain the assistance of a specialist for that purpose—will probably be able to obtain a certain rate of remuneration for their work which will not be oppressive to their clients and will yet reward them to some extent for their time and skill. It is more than likely that, as Lord Balfour of Burleigh said, the institution will have many imitators elsewhere; at any rate, the experiment will be closely watched in many large towns where the need which has brought it into being in Edinburgh is equally pressing.

A SHORT WAY WITH LEPERS.

THE mediaeval methods of dealing with leprosy were extremely drastic. Lepers, and, it is to be feared, many persons suffering from syphilis, lupus or other unsightly skin diseases, or who, like Falstaff, had lost their voice through hallooing and singing of anthems, were dragged into the net and swept into lazar houses, where they were cut off from the fellowship of their kind. Philip the Fair of France, if he is not belied, had a still more effectual way of stamping out leprosy in his realm, for he is said to have burnt some 11,000 supposed sufferers from the disease. It is true that a large proportion of the pestilent persons thus purified by fire were Jews, and it may perhaps be conjectured that the King owed many of them money or coveted their wealth. If we are to believe Dr. J. J. Matignon, for many years physician to the French Legation at Peking, Young China, whose professed aim is to bring the Flowery Land within the pale of modern civilization, has adopted Philip's hygienic methods in dealing with the leper question, though as yet on a much smaller scale. In the *Chronique Médicale* of May 15th he says that in the neighbourhood of the town of Nan Ning, the capital of Kouang Si, there lived a small colony of lepers. No notice was taken of them by the authorities or anybody else, except some French missionaries who helped them as far as they were able. It was proposed to build a refuge for them, and many of the well-to-do inhabitants promised their support. The governor of the province was understood to approve of the scheme. But Young China resented the interference of foreigners in a matter of social hygiene, and did its utmost to stir up public opinion against the lepers, who were described as outcasts rejected by Heaven whom it would be impious to help. A general massacre in the interest of the public health was openly spoken of. The rest of the story is told in a long letter, the authenticity of which is guaranteed by Dr. Matignon, which is published in the *Bulletin du Comité de l'Asie Française* for March, 1913. It is there stated that on December 14th, 1912, the leper village was at daybreak surrounded by more than a hundred soldiers. Like a flock of sheep driven to the slaughter-house the lepers were forced towards a pit from two to three metres deep that had been carefully prepared in the manœuvring ground. At the bottom of this pit was a thick pile of wood, and a ladder was placed at the side. One by one the lepers, the women with their children in their arms, went down the fatal ladder and sat at the bottom. Then the word of command, *Cha* (kill), was given, and the soldiers fired almost point blank at the victims. Petrol was then poured into the pit, and a flame of fire announced this triumph of the new hygiene. A few lepers who had escaped were pursued and shot. The governor declares himself particularly satisfied with this sanitary achievement. In a proclamation he says: "I Tan Hao Ming, wish to bring this to the knowledge of the people. The lepers commit abominable excesses and are feared by everybody. They take advantage of their disease to molest the inhabitants of the village, to ravish their women, and to extort money from them. The recital of these crimes makes the hair stand on end. I have referred the matter to the president of the province, who, by a secret order, commanded me to seize and kill all the lepers of the town of Nan Ning. At once, therefore, I had a large pit dug and had all the lepers arrested and exterminated. Thus shall we be delivered for ever from contagion. I am assured of universal approval." This is certainly a more drastic method of dealing with lepers than segregation. The complacency of the governor is that of a man who thinks he has deserved well of the commonwealth. If Young China continues to follow this path in its progress towards hygienic reform there will, in no long time, be no contagious diseases—and no citizens—left in the new republic.

THE GASTRIC JUICE IN DISEASES OF THE STOMACH AND DUODENUM.

THE *Quarterly Journal of Medicine* has acquired an honourable position by according the hospitality of its columns to lengthy papers for which there has been no place since the death of the *British and Foreign Medico-Chirurgical Review*. This service should gain for it the support of all who desire to see the work done by physicians in this country put upon an equal footing with that performed abroad, and it is satisfactory to know that the *Quarterly Journal* has not only gained a scientific position, but is successful as a commercial venture. Its current issue contains an account of a laborious investigation carried out by Drs. Schryver and Singer in the Research Institute of the Cancer Hospital on 125 cases of malignant and non-malignant disease of the stomach and duodenum, to determine the diagnostic value of chemical methods of examining the gastric contents. The points inquired into were the phenolphthalein acidity, the dimethyl acidity, Guenzburg's test, the peptic index, the total chloride, the secreted chloride, the nitrogen, and the nitrogen factor. The labour involved in such a research must have been immense, and we are sorry the results are disproportionate to the time and work devoted to them. However, this has for some time been anticipated by the experience of clinicians, who have come to regard the chemical examination of the stomach contents as rather interesting than important, and frequently to be safely dispensed with in private practice where a practical conclusion is all that is desired. The writers conclude that all available methods of estimating the chloride-secreting activity of the stomach "contain sources of error beyond experimental limits," and must be checked by determining the "nitrogen factor," arrived at by subtracting the estimated hydrochloric acid acidity from the total acidity and dividing this by the number of cubic centimetres of decinormal sulphuric acid required to neutralize the ammonia formed by a Kjeldahl examination of 10 c.cm. of the filtered gastric juice, the result being multiplied by 10. They believe the gastric efficiency as regards hydrochloric acid is best determined by the "secreted chloride" (that is, the total chloride less inorganic chloride), and they dispute the delicacy of Guenzberg's reaction for showing the presence or absence of free hydrochloric acid. Yet the estimation of the "secreted chloride" is essentially a laboratory process, and they speak of it as "comparatively cumbrous" and "involving certain sources of experimental error." Their methods have not enabled them to distinguish pyloric from duodenal ulcer, in both of which the "secreted chloride" is high, but in the case of ulcers in the body of the stomach the results vary. Similar results were seen in carcinoma in accordance with its position, hyperchlorhydria or euchlorhydria being common in cancer of the pylorus, while the presence of this disease has "no specific effect on the composition of the gastric juice."

Again, "hyperchlorhydria, hypochlorhydria, and achylia are encountered independently of coarse gastric lesions." This is in contradiction to the positive assertion of some surgeons, which have never been generally admitted by physicians, although "the coincidence of a definite hyperchlorhydria with a greatly raised 'peptic index' (80 or over) is practically diagnostic of pyloric and duodenal ulcer among gastric diseases"; but these "must be carefully distinguished from certain cases of chronic appendicitis." By "peptic index" the authors mean the numerical expression of the peptic activity determined by the Fuld-Levison method. They also find that a "nitrogen factor" over 2.8 is "almost diagnostic" of delayed emptying of the stomach—a point obviously better determined by direct examination. A more interesting statement is that chronic gastritis "probably causes dissociation of chloride and pepsin secretion," by which they mean excess of hydrochloric acid and diminished pepsin. It should not be forgotten that the diagnostic rules formulated by Ewald were empirical, but that further experience has justified most of his conclusions. It is, however, unwise to rely in diagnosis on any single method, and stomach chemistry becomes a dangerous snare if depended upon to the exclusion of other means. It can hardly be maintained that the complicated and elaborate investigations carried out by these workers afford such trustworthy information as to induce clinical workers to devote to them the time and labour they need.

TROPICAL ULCER.

DURING the past few years many observers have studied the peculiar condition known as tropical or sloughing ulcer, and its etiological agent is now usually admitted to be a spirochaete, which Prowazek, who discovered it, named *Spirochaeta schaudinni*. Garin,[1] who has worked on the subject in Lourenço Marques, states that the disease is very frequent there in all its forms, from the mildest, small ulcerations, only one-fifth of an inch in diameter, to serious and even phagedaenic types which cover the whole leg, destroying tendons and muscles and attacking the bones. Within the last two years he has studied more than 400 cases, all, with two exceptions, in natives. He agrees that the spirochaete is the cause, though apparently it has to be associated with fusiform bacilli, which have some relationship with the *B. fusiformis* of Vincent. He points out, however, that the species of these organisms is not yet fixed, and that many points in this alleged fuso-spirillar association are still very obscure. It has been suggested that the parasite may be transmitted by leeches, but this seems not to have been established, and it must be admitted that, frequent though the disease be in certain places, the mode of infection is unknown.

LISTER MEMORIAL.

THE President of the Royal Society has received from the Portuguese Legation subscriptions amounting to £21 5s., forwarded by the Society of Medical Science of Lisbon as a donation to the Lister Memorial Fund. A sum of 867 dollars has been collected by Dr. W. W. Keen, F.R.C.S., of Philadelphia. Further donations intimated from foreign countries include: The University of Paris, 500 francs; *Muenchener medizinische Wochenschrift*, 200 marks; the University of Lyons, 100 francs; the Société de Chirurgie of Lyons, 100 francs; the Faculty of Medicine of the University of Munich, 100 marks; the Faculty of Medicine of the University of Breslau, 110 marks; Stockholm Medico-Chirurgical Society, £5; and Naturhistorisch-medizinischer Verein, Heidelberg, 50 marks. A donation of £10 has been received from the University of Calcutta.

[1] *Transvaal Medical Journal*. December, 1912.

THE PHILADELPHIA COLLEGE OF PHYSICIANS.

WE have received a reprint from *International Clinics* of an account of the Philadelphia College of Physicians by its president, Dr. G. E. de Schweinitz. It is not definitely known to whose initiative the foundation of the college is due. As early as 1767 John Morgan made proposals to Thomas Penn for the erection of a college, but a charter was refused. It was not actually instituted till September, 1786, and the first meeting took place on January 2nd, 1787. That day, therefore, is regarded as the official birthday of the college. Its objects, as set forth in the original constitution, are: "To advance the Science of Medicine and thereby to lessen Human Misery by investigating the diseases and remedies which are peculiar to our Country by observing the effects of different seasons, climates and situations upon the Human body, by recording the changes that are produced in diseases by the progress of agriculture, Arts, Culture, and Manners, by searching for Medicines in our Woods, Waters, and the bowels of the Earth, by enlarging our avenues to knowledge from the discoveries and publications of foreign countries; by appointing stated times for Literary intercourse and communications, and by cultivating order and uniformity in the practice of Physick." Two years after its foundation the college was incorporated by charter. The college has nothing to do with licensing practitioners, but is a scientific body which holds monthly meetings (except during July, August, and September), at which papers on medical, surgical, and allied subjects are read and discussed. These communications are published in the *Transactions*, the first volume of which appeared in July, 1793. In addition to its purely scientific work the college almost from the beginning has taken an active interest in matters concerning the health and welfare of the community, and it has been consulted on such questions by the State and municipal authorities. The first standing committee, that on meteorology and epidemics, was appointed in 1787 and presented a yearly report until it was abolished in 1882, a period of ninety-five years. In 1787 another committee was appointed to submit plans of hot and cold baths and a botanical garden for the city. It held consultations with the State Legislature in 1789 as to the spread of infectious diseases. In 1794 it considered the regulation of the practice of physic within the State and the establishment of quarantine and a hospital for contagious diseases. It worked in conjunction with the Philadelphia Board of Health in the management of an epidemic of cholera in 1788; it memorialized the State Legislature in 1787, and the Congress of the United States in 1790, on the deleterious effect of alcohol on the human system and the need of laws regulating its consumption. In each decennial revision of the *Pharmacopoeia* of the United States, the College has taken an active part. In regard to animal experimentation, especially since 1885, when it first addressed a protest to the Legislature against a bill to prevent such experiments, it has played the part of a research defence society. The college is now, as it has been in the past, always ready to give advice in matters pertaining to the welfare of the community. As an example may be mentioned the careful investigation made by a committee at the request of the Commissioner of Health of Pennsylvania as to the expediency of the free distribution by the various county societies of antitetanic serum. Of the library not much need be said, as a full account of it was given by Professor W. W. Keen in an illustrated article which appeared in the BRITISH MEDICAL JOURNAL of October 16th, 1909, p. 1161. The nucleus of the library was a donation of twenty-four volumes by Dr. John Morgan in 1788. The total number of volumes in the collection is 95,896, besides which there are 8,917 unbound theses and dissertations, and nearly 90,000 unbound pamphlets. Two years ago the college instituted a series of lectures on great doctors

and achievements in medical research; these are intended for the education of the public in the aims and progress of scientific medicine.

THE FRIEDMANN CURE FOR TUBERCULOSIS.

THE first official opinion of the board appointed by the American Government to investigate and report as to the value of Dr. Friedmann's treatment of tuberculosis was embodied in a statement read before the National Association for the Study and Prevention of Tuberculosis at its annual meeting held at Washington on May 9th, by Dr. John F. Anderson, of the United States Public Health Service, Chairman of the Board. The report, according to the *Medical Record* of New York of May 17th, was to the effect that the board, without presenting in detail the condition of patients under observation, was in a position to state that the effects thus far observed did not justify the confidence in the remedy which had been inspired by widespread publicity. The report proceeds: "In our opinion harm may have been done by this undue publicity in so far as it has lessened the confidence of tuberculous persons in well recognized methods of treatment or interrupted their use, and we are constrained to advise against any lessening of these well-known measures which not only have effected cures, but which have reduced the incidence of the disease." After the reading of the report the association passed the following resolution: "That there is no information before the National Association for the Study and Prevention of Tuberculosis to justify the belief that any specific cure for tuberculosis has been discovered which deserves the confidences of the medical profession or the people, and that it is the duty of the public to continue unabated all the present well-tried agencies for the treatment and prevention of tuberculosis."

AT the anniversary meeting of the Royal Geographical Society, on May 26th, the patron's medal, which had been assigned to the late Dr. Adrian Wilson, chief of the scientific staff of Captain Scott's expedition, was handed to his widow. Lord Curzon, in the course of his presidential address, said that Mrs. Wilson had offered to present to the society some of the water-colour sketches of her late husband, which apart from their special interest were works of art of high merit. They would be placed in the museum, which would form a conspicuous feature in the new and spacious quarters of the society in Kensington.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

Prospects for the Session.

THE House of Commons reassembled on Tuesday, May 27th, and it was quite evident from the events in the House and from the general state of business that the prospect of getting through the bills already projected by an early date in August is by no means favourable.

Tuesday and Wednesday, May 27th and 28th, were to be devoted to an Address to the Crown that an additional judge should be appointed to the King's Bench Division, to the second reading of the Appellate Jurisdiction Bill already passed by the House of Lords, and to the second reading of the Mental Deficiency Bill, Elementary Education (Defective and Epileptic Children) Bill, Milk and Dairies Bill, and of the Bee Disease Bill, if time permitted.

Considerable opposition was offered by a small number of members to the Judicature Bills, so that the whole sitting of Tuesday, May 27th, was occupied in the adoption of the Address to the Crown, and in the commencement of the discussion on the second reading of the Appellate Jurisdiction Bill. Further, out of the time available for Government business, an hour and a half was occupied in opposition to a bill promoted by the London County Council. In view of the opposition to the Appellate Jurisdiction and Mental Deficiency Bills, it is certain that the other measures on the list cannot be proceeded with further this week.

The second reading of the latter bill was moved on Wednesday by the Home Secretary, who in a short speech directed attention chiefly to the points in which the bill of this year differs from that of last year. The differences and the general scope of the bill were fully discussed in an article published in the BRITISH MEDICAL JOURNAL of April 5th, p. 730. A motion to reject the bill was made by Mr. Handel Booth, who received a good deal of support from other members sitting on the ministerial benches, including Mr. Wedgwood and Mr. Atherley Jones. The debate had not concluded when it was adjourned under the rules of the House at 11 p.m.

As the period of the session becomes more advanced, the prospects of the passage of the Mental Deficiency and Milk Bills become much less favourable, unless the House is to sit throughout August, or have another autumn session. In view, however, of the strong opposition of members to sitting through August, it is very likely that some of the bills above mentioned will be abandoned.

The other business of the session will be the passage of the Finance and Revenue Bills, and the second reading debates and other stages of the Home Rule, Welsh Disestablishment, and Scottish Temperance Bills, which are to be passed a second time under the Parliament Act; the remaining days that must be devoted to the discussion in Supply must also be taken into account, and in addition the Plural Voting Bill, although a very short measure, is to be taken in Committee of the whole House. A resolute opposition to it is to be anticipated both on the Committee and Report stages, and the order paper already shows a large number of ingenious amendments. There will also probably be a debate on the report of the Marconi Committee.

Finally, in view of the statement of the Prime Minister, it is certain that the Government proposes to introduce and pass a measure directed to the amendment of the National Insurance Act in various respects.

In connexion with the last-named measure, the reports current in the Lobby are of the most diverse and fanciful character. The rumours which have been spread as to alterations in its compulsory character may certainly be dismissed as baseless, since any one acquainted with the financial arrangements which have been made by the societies and the Commissioners will recognize that such a fundamental alteration is quite outside the field of practical politics. No doubt an effort will be made to keep the amending bill as non-controversial as possible, although it can easily be imagined that in financial, administrative, and other matters there may be various adjustments to be made, as a number of points have arisen during the debates and in questions to which the Government has promised to give consideration.

So far as professional matters are concerned, we have heard of nothing which would induce us to depart from the forecast which was given in a recent issue.

THE Croonian Lecture before the Royal Society will be delivered by Dr. Robert Broom, Keeper of Vertebrate Palaeontology in the South African Museum, on Thursday next, at 4.30 p.m. The subject is the origin of mammals.

THE course of three Chadwick Lectures, to be delivered by Dr. F. W. Mott, F.R.S., at the Royal Society of Arts, John Street, Adelphi, W.C., at 5 p.m., on June 6th, 13th, and 20th, will deal with nature and nurture in mental development. Sir James Crichton-Browne will preside at the first lecture; Mr. Henry C. Stephens, Chadwick trustee, at the second; and Sir William J. Collins, chairman of the trust, at the third. The lectures will be illustrated by lantern slides, and will be free to the public.

THE Medical Society of London, at its meeting on May 19th, appointed Sir David Ferrier, F.R.S., president, in succession to Sir Watson Cheyne, and Dr. J. Mitchell Bruce, treasurer, in succession to Sir John Tweedy. Other officers appointed were Dr. R. A. Young and Mr. G. E. Gask, honorary secretaries, and Dr. F. Parkes Weber, honorary secretary for foreign correspondence. Dr. F. M. Sandwith was chosen to deliver the Lettsomian lectures and Mr. Robert Jones, of Liverpool, the annual oration. A council of twenty was also appointed.

England and Wales.

[FROM OUR SPECIAL CORRESPONDENTS.]

WALES.

Research in Mental Disease.

Last week the Home Secretary, at the invitation of the Lord Mayor of Cardiff, who is also Chairman of the Committee of the Cardiff Mental Hospital, visited that institution, and, after making a tour of the buildings, was received in the new pathological research laboratory by Dr. Goodall, the medical superintendent, who pointed out that the pathological problem of mental disease was now viewed more and more from the standpoint of general pathology. The problem was mainly of a biochemical nature, and for its solution the services of the general pathologist and bacteriologist, the chemist and the physiologist were needed. A properly equipped department or institute for pathological research in mental disease should provide facilities for workers in these branches of science, and, of course, for ordinary clinical pathology, such as would be conducted by the physicians at the mental hospital with which the department was connected. Correlation of the work of these experts was necessary, as each could throw light on the difficulties of the other. The immediate requirements of the research department were a worker in physiology and funds for the formation of a library, and eventually for the remuneration of a scientific director to devote his whole time to the work. Subsequently the Home Secretary was shown round the general laboratories by Dr. H. A. Scholberg, and over the chemical laboratory by Dr. Stanford, Research Chemist.

It will be remembered that some time ago the Lunacy Commissioners received a deputation representing some fifty-three asylums, which pointed out the need for the establishment of hospitals for mental disorders with adequate laboratory provision for research in contiguity with every complete school of medicine. The Lunacy Commissioners have made representations to the Home Secretary suggesting the propriety of making a State grant for research in mental diseases, and at a luncheon held at the City Hall after the visit the Lord Mayor of Cardiff said that it was hoped that the Home Secretary would shortly make a new departure by instituting Government grants to local authorities progressive enough to establish departments of research into the cause and cure of mental diseases. In the research work so successfully carried out by Dr. Goodall and his staff of expert assistants, the Committee of the Mental Hospital had been heartily supported by the corporation as a whole, but local burdens were already very heavy, and it was time to ask Parliament to set aside a certain sum to be administered by the Lunacy Commissioners by way of grants in aid of mental research laboratories.

Mr. McKenna, in his reply, after declaring Cardiff *de facto* the capital of Wales, said that he was much impressed by the representations which had been made to him and by what he had actually seen at Cardiff, and would impress upon the Treasury the necessity for the extension of the work, not only at Cardiff, but in other great centres, such as London, the West Riding, and Lancashire, where attempts of a similar character were being made to effect a larger proportion of cures of mental disorders than had been possible in the past.

MANCHESTER AND DISTRICT.

The Physique of the Modern Boy.

In a paper recently communicated to the Statistical Society of Manchester,[1] Dr. A. A. Mumford brings together a considerable mass of statistical data relating to the physique of children of school age. In the first part rather scanty data collected by the Factory Inquiry Commission, giving the heights and weights of factory and non-factory children in 1833, are compared with the measurements of city children recorded by the Anthropometric Committee of the British Association in 1883, and the conclusion drawn that, so far as growth in height and weight are concerned, no progressive decay is observable. In the second part a similar comparison is instituted between the boys in the Manchester Grammar School during 1881–6 and 1905–10. These figures show, if anything, an improvement in the later period. From a study of the records of their athletic sports it would also appear that the physical attainments of middle class boys have not deteriorated, but evidence of this kind is of somewhat limited application. Very useful tables give the heights, weights, and girths of deaf and normal children at the same ages, and seem to show that "in spite of the very superior care in feeding, in physical training, and in bodily care they [the deaf] receive at the Royal Schools for the Deaf, Old Trafford, they never catch up to the normal members of their own class." This statement applies to the boys rather than to the girls. Lastly, the "free place" boys in the Manchester Grammar School are compared with their fellows, the differences found being apparently of little moment. It must, of course, be remembered that the "free placers" are all picked boys and presumably above the average of their class.

[1] *The Physique of the Modern Boy.* By Dr. A. A. Mumford. Reprint of a paper read before the Manchester Statistical Society, December 11th, 1912. Manchester: John Heywood, Limited.

Guardians' Visits of Asylum Patients.

Several weeks ago the South Manchester Guardians proposed to stop paying visits to patients they had sent to asylums, the idea being that no good ever came from such visits. In a letter dated May 8th, the medical superintendent of the Lancashire County Lunatic Asylum gave it as his opinion that visits of guardians did no harm and might even be beneficial to some patients, providing the number of the deputation were limited to, say, three or four, with, in addition, the clerk and the medical officer. The South Manchester Guardians have now received a letter from the Lunacy Commissioners which very strongly expresses the views of the Commissioners "that the visitation by guardians of patients from their unions is of the first importance to the comfort and contentment of the patients, who, cut off and separated from their friends and homes, and suffering frequently from a sense of injustice at their confinement at all, regard with much pleasure the visits of the outside local authorities who bring them into some sort of relation with their own homes."

LIVERPOOL.

Memorial to Dr. Waters.

On Sunday, May 25th, at St. Luke's Church, in the course of the morning service, Archdeacon Madden unveiled a handsome brass mural tablet which has been placed in the church by Mrs. Waters in memory of her husband, the late Dr. A. T. H. Waters of Liverpool. The unveiling was preceded by a few appropriate words, addressed to the congregation, and by a short dedicatory prayer. The inscription is as follows:

> To the glory of God and to the dear memory of Alderman Thomas Houghton Waters, M.D., F.R.C.P., born 5th June, 1826, died 8th June, 1912, who for 32 years within these walls found strength for the service of his Master. Associated with the medical charities of this city for nearly 60 years, and always active in the relief of human suffering, he shared in every effort to increase knowledge or to ennoble life, till having served his generation he was called to his rest.

The Insurance Act.

The Liverpool tramway employees have obtained a certificate exempting them from all contributions under the Act, on the ground that the persons concerned have a scheme which provides medical benefits, superannuation, etc., on even better terms than the Act could offer. Unfortunately their estimates are based on a rate of remuneration to their medical officers which is considerably less than the standard secured by the Act. It is hoped that the doctors concerned will not consent to an arrangement which would negative much of the work of the Association during the last two years. They naturally ask an assurance that if they insist on the higher rate they will not be undercut by their neighbours. The matter is one which will no doubt receive the early attention of the local Division.

CHANGES IN HOSPITAL STAFF.

Owing to transfer of Dr. Warrington to the Royal Infirmary, a medical vacancy has arisen at the Northern Hospital. There will also be vacancies for an assistant physician and an assistant surgeon at the Children's Hospital, and for an assistant surgeon at the Women's Hospital, Shaw Street.

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

EDINBURGH PARISH COUNCIL AND THE ROYAL INFIRMARY.

AT the meeting of the Parish Council on May 19th (Mr. Huie, Vice-Chairman, presiding) a letter was read from the Clerk of the Royal Infirmary with reference to the application of the Council for representation on the board of managers of the infirmary. The managers pointed out that election to the board was regulated by the Infirmary Act of 1870 and by the charter of the institution, and they regretted that they were not in a position to grant the request of the Parish Council. A discussion followed, in which some feeling was expressed regarding the reply of the infirmary board; but finally, on a vote being taken, 12 voted for no further action being taken, and 10 for the matter being remitted to the Chairman's committee. The subject was therefore allowed to drop.

THE LORD HIGH COMMISSIONER AND MEDICAL INSTITUTIONS IN EDINBURGH.

During the ten days or so once a year in which royalty is represented in the Scottish capital, and in which the halls of Holyrood Palace re-echo once more to the tread of many feet, the Lord High Commissioner has always some minutes to spare to visit the many medical institutions with which Edinburgh abounds. This year has been no exception to the well-established custom, and during the past fortnight the Lord High Commissioner, with Lady Glenconner, and in some cases Lady Glenconner alone, have visited the Hospital for Diseases of Women, the Royal Victoria Hospital for Consumption, the Royal Institution for the Education of Deaf and Dumb, the Royal Blind Asylum, the Deaconess Hospital, the Hospice, the Royal Maternity Hospital, the Cripple Children's Home, the Royal Infirmary, the Royal Sick Children's Hospital, and Donaldson's Hospital (for deaf and dumb children). The Royal Colleges of Physicians and Surgeons have also been officially present at the levees in Holyrood, and representative medical men have had the honour of dining with His Grace.

OPENING OF NEW NURSING HOME, EDINBURGH.

On May 21st Lord Balfour of Burleigh, in the presence of a large and distinguished company, declared the new nursing home open. The home is the outcome of a movement to provide for persons of limited means a hospital where they will be able to obtain medical and surgical treatment as in-patients by paying moderate fees; it is, therefore, intermediate between the hospitals where accommodation and treatment are received as charity and the expensive nursing homes, which, by reason of the fees charged, are beyond the reach of a large section of the middle class. A beginning was made in 1910, when some preliminary subscriptions were obtained, chiefly from the medical profession itself, which has responded handsomely all through; then in 1911 a public meeting was held in Edinburgh, under the chairmanship of Sir Robert Usher, Bart., when an influential committee was formed, with Lord Dunedin as chairman, Professor Lodge as chairman of executive, and Dr. Chalmers Watson as honorary secretary; an appeal then made for funds was so well responded to by the public that now £13,000 out of the £13,500 asked for has been received. Public sympathy was excited in a remarkable manner when it was made clear that, provided the initial expense of buildings and furnishings was met, the home could be made self-supporting, the patients paying from 1 to 3 guineas a week, according to the accommodation supplied. Public sympathy was aided to make itself practically effective by means of a band of voluntary lady collectors, 250 strong, who in all parts of Scotland brought the scheme intelligently before the notice of the charitable. As a result over 10,000 subscribers gave sums varying from £250 to 3d. Meantime a pioneer home managed on the principles above described was being successfully carried on in Rutland Square; but it was on a much smaller scale than that now available, and it has been merged in the latter. Still, it has served to open the way and make the public more fully aware of the possibilities of such an institution. The home, formally opened by Lord Balfour of Burleigh on May 21st, is situated in what may be called the hospital quarter of Edinburgh; it is within a stone's throw of the Chalmers Hospital, an institution with somewhat similar aims, although not intended for quite the same class of patients, and of the Royal Maternity Hospital, and it is within sight of the Royal Infirmary. It is thus, so to say, within the sphere of the daily work of the various physicians and surgeons who are attached to these institutions, and who will doubtless be amongst the medical men who will give operative and other treatment in the new home. The home came into being through the adaptation of three continuous villa residences in Chalmers Street, and Mr. T. Duncan Rhind, A.R.I.B.A., deserves great praise for the skilful manner in which he has carried through the necessary changes and extensions. There are beds both for male and female patients; two of the wards have each 8 beds, five of them have 3 beds each, and there are twelve private rooms with 1 bed in each. There are two operating theatres, with a sterilizing room between, and there is an anaesthetic room with wide folding doors; there is an electric lift big enough to take a bed with patient in it, and a nurse, and there is another for food. In place of bells there is a silent system of electric signalling, and there are rooms for *x*-ray treatment, for hydrotherapeutic treatment, for massage, etc., as well as a dark room for photographic work. In addition to all these things there is accommodation for the matron and nurses, for the maids, for the doctor, for convalescent patients, and a bright room with four cots for children. At each end of the building there is a fire-escape iron stair which leads to the back green, and is connected with each floor.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

NURSING CONGRESS IN DUBLIN.

THE National Council of Trained Nurses of Great Britain and Ireland will hold a nursing conference and exhibition in Dublin on June 4th, 5th, and 6th, in the house of the Royal College of Physicians. Various papers will be read and discussed on the Wednesday and Thursday. A very attractive programme, arranged by the Irish Nurses' Association, will commence by a reception at the Royal College of Surgeons on June 3rd at 8.30 p.m., when a pageant illustrating the history of nursing will take place. On Wednesday the Master and Lady Superintendent of the Rotunda Hospital will be at home to the members, and in the evening, in the Abbey Theatre, a series of tableaux descriptive of the history of nursing will be shown. On Thursday there will be a garden party at the Zoological Gardens, and in the evening a banquet in the Mansion House. On Friday there will be an excursion to Glendalough, returning by Newcastle, where the governors of the Consumptive Hospital will entertain the party to tea. Shorter excursions to Howth and Killinay will be made on the same day.

TYPHUS FEVER IN CONNEMARA.

At the last meeting of the Oughterard Board of Guardians, the Chairman of the District Council handed in a notice of motion calling on the Congested Districts Board to sink wells and place pumps in the fever-stricken districts of Connemara. Sir Acheson MacCullagh, medical inspector to the Local Government Board, said that the majority of the patients came from Rosmuck—13 cases had occurred there; but he was glad to be able to state that at present there were only 3 cases of fever, 2 of which were practically convalescent and the other was improving. It was stated that some of the patients had to remain lying on the floor of their cabins, as it was impossible to transport them thirty miles to the fever hospital. All the cases were

miles away from the tracks of the tourist visitors, and it seemed that many of the statements which appeared in the public press were largely exaggerated. Typhus fever is endemic in the islands off the coast of Connemara, and since last September 40 cases have been notified in a dispensary population of 10,000 persons; as there have been only 5 deaths, the epidemic cannot be considered very serious. The standard of living in these islands is very low, and the people are housed in miserable hovels and draw their drinking water from stagnant pools. The local authority is too poor to undertake the necessary reforms, and it therefore rests with the Congested Districts Board to take steps to see that the urgent needs of these poor districts are supplied. This outbreak has shown the necessity for a temporary hospital on the mainland near the islands to which the patients could easily be brought, and to this purpose, perhaps, the funds which are being raised by public subscription could best be devoted.

At a meeting convened by the Lord Mayor in the Mansion House, Dublin, last week, to consider the condition of Western Connemara, the following resolution was passed:

> That a subscription list be now opened to ameliorate the conditions of life existing in the western parts of Connemara, and this meeting calls upon the responsible authorities to take immediate steps in discharge of their obligations for the purpose of securing decent conditions of life for the inhabitants of that district.

Correspondence.

MALARIA PREVENTION IN GREECE.

SIR,—Students of malaria may remember that seven years ago I published (*Journal of Tropical Medicine*, November 15th, 1906, ix, 22, page 341) an account of a visit to Greece, especially to the Copaic Plain, for the purpose of advising upon the reduction of malaria there. They may now like to have a short account of a second visit which I have just paid there, after an expedition to Cyprus on behalf of the Colonial Office for a similar purpose.

It will be remembered that the British employees of the Lake Copais Company suffered much from malaria in the old days, and that I advised the houses to be protected by wire gauze, and the neighbouring collections of water to be kept free of weeds and periodically oiled. I am glad to say that these measures have had an excellent result, and that I was informed during my recent visit that no indigenous cases have occurred amongst the British employees in the neighbourhood of Moulki for some years past. The houses are excellently protected, and the waterways kept periodically cleaned.

Some distance from these houses there is the Greek village of Moulki, which is, of course, under the sanitary rule of the Greek Government. Here much quinine has been given to the villagers, especially to the children; and the company has been good enough to oil the stagnant waters round the village as much as possible, though this duty does not lie upon its shoulders. The result has been that whereas in May to June, 1906, I found splenomegaly in 35 out of 62 children, or 56 per cent., now, early in May, 1913, I find it only in 14 out of 50 children examined. But this is not a quite fair measure of the reduction which has been effected, because I have been much more particular on this occasion to take into account the very smallest enlargements of the spleen. I should say, therefore, that the reduction has been greater than 50 per cent. Moreover, the village children and the villagers in general looked in every way much healthier than they did previously, and the priest, the innkeepers, the schoolmaster, and the head man of the village all testified to the improvement which had taken place, and praised the company for the work that it had been doing.

Nevertheless, in spite of all the trouble that has been taken at Moulki village, a spleen-rate of something like 28 per cent. remains; and the old stagnant pools of water remain also, even though they are kept oiled. This only confirms me in the belief which I have long held that quinine, oiling, and even wire gauze protection are seldom sufficient by themselves to eradicate malaria completely so long as the breeding pools remain undiminished in extent. In this connexion I would specially invite attention to the Indian experiences, well summarized by the Director-General of the Indian Medical Service, Surgeon-General Sir Pardey Lukis, in his presidential address at the third meeting of the General Malaria Committee held at Madras on November 18th, 1912. I doubt much whether, after all, the radical measure is not in the end the cheapest and the best, even for such semi-waterlogged places as the Copaic Plain.

It will also be remembered that, after my first visit to Greece, the Liverpool School of Tropical Medicine raised a subscription, which reached several hundreds of pounds, for the Greek Anti-Malarial League. The work of this league has been fully and ably set forth by my friend, Dr. Savas, Professor of Hygiene and Bacteriology at Athens, in his contribution to my book on *The Prevention of Malaria* (Murray, 1911, page 432). The league persuaded the Greek Government to make quinine a State monopoly in order to avoid the expense and frequent adulteration which used to occur in Greece. It also frequently sends experts to the villages in order to teach the people how to act against the mosquitos; but its funds are low, and I understand the Greek Government gives it only 5,000 drachmae (francs) a year. On the other hand, the Greek Government appears to be making quite a nice profit out of the sale of the quinine, amounting to 46,000 drachmae in 1908–9, 61,000 in 1910, and 83,000 in 1911. It seems to me to be scarcely a part of the function of Government to make a profit from sanitary measures; and Professor Savas and I therefore sought and obtained an interview with Mr. Venezelos, the distinguished Greek Minister, and urged that the money should be utilized for malaria prevention, and that the Greek Government should do more for draining the villages; and I am sure that our representations will have every consideration from him.

The fact is that the same defect holds almost everywhere throughout the world. The unfortunate villager produces the food of the world and pays his taxes, but almost nothing is done for him in the sanitary line by any of the Governments under which he toils. They give him peace and a certain amount of justice and education (at his expense); but scarcely ever spend even a few shillings to keep his village in a wholesome condition, or even his roads in proper repair. Thus, I learnt that at Moulki no money had been spent on the village for this purpose for years past. One reason why I have always so strongly urged mosquito reduction in malarious countries is because this sanitary measure means in fact a sanitary charter for the immense rural population of such areas; and if we can only persuade Governments to adopt it generally, a new epoch will be created in rural life in warm countries.—I am, etc.,

London, W., May 23rd. RONALD ROSS.

THE FORM AND POSITION OF THE STOMACH.

SIR,—I must apologize for writing again on this subject; but Mr. Gray accuses me of "throwing dust in the eyes of the reader and confusing the issue." If he will re-read my letter of May 3rd, he will see that in the last paragraph on p. 970 I state that I often find a pause in the onward progress of the food "just below the air shadow"—that is, just below the cardiac orifice—and also "at the lowest point before turning to the right along the pyloric canal," the normal stomach being approximately J-shaped. In the next paragraph I speak of the food being held up (1) "just below the cardiac orifice," (2) "at the lowest part of the organ," and (3) of spasmodic contractions being most often noted in the "middle of the body of the stomach." (If Mr. Gray will look up Figs. 10, 11, and any of Figs. 19 to 23 in my articles in the *Medical Chronicle* of January and February, he will see diagrams that should make these points quite clear.) And yet again in the next paragraph I wrote that apparently Mr. Gray claims a middle sphincter "just below the cardiac orifice, in the middle of the body of the stomach as well as at the lowest point." And yet, in spite of these very definite descriptions, Mr. Gray writes—in inverted commas, as if quoting from my letter of May 3rd—that I described these sites as "half-way down the stomach," "the lowest part of the organ," and "the middle of the body." I have re-read my letter most

carefully and cannot find these descriptions, and yet it is on this that Mr. Gray accuses me of throwing dust in the eyes of the readers, and says that I am "particularly unfortunate in choice of terms and descriptive powers."

The reason I took no notice of Mr. Gray's query as to the position of the pylorus is obvious; the question seemed to be raised with the object of discrediting radiographic findings, and the question in point was "the middle sphincter." Incidentally I notice that in the case Dr. Jordan describes and figures, and Mr. Gray quotes so frequently, the patient was "admitted for nausea and vomiting with haematemesis." It does not sound like a normal healthy subject, even if the surgeon did fail to discover anything abnormal in the stomach. Also, Dr. Jordan does *not* state that the pylorus is opposite the fourth lumbar vertebra, but that the pylorus is "behind the umbilicus," and I am sure Mr. Gray knows that this surface marking is not necessarily a fixed point in relation to the vertebrae.

If Mr. Gray will again look up the *Medical Chronicle* of January he will find on pages 208 and 215 an explanation of the discrepancies between the *x*-ray and operative appearances. Has he by any chance reopened an abdomen and found at the second examination a much larger or smaller stomach than when he first saw it? Or has he seen in the *post-mortem* room some of his own cases and found that what he had thought was a normal stomach had become a large flaccid sac or vice versa? Or, if he ever examines patients with the fluorescent screen, has he by any chance seen one who turned faint or became suddenly frightened, and noted how the lower border of the stomach dropped, or has he seen how the organ may contract right up under the diaphragm in the act of vomiting?

The changes that may be brought about by anaesthesia or death are infinitely more profound than those that might possibly be induced by mixing a little bismuth or barium into ordinary food. But why will Mr. Gray always seek to discredit radiographic findings, and confuse the issue by seeking out discrepancies which he could easily verify or disprove by undertaking for himself the systematic examination of a considerable number of healthy persons, and investigating the subject for himself? If he has not efficient apparatus at his disposal my offer is still open, and I trust that he will accept it.

With regard to the explanation of his clinical phenomena, I offer no suggestions, and admit that Mr. Gray's theory would be a satisfactory explanation but for the fact that no "middle sphincter" can be found, and that the stomach, with certain reservations already stated, is one undivided cavity.—I am, etc.,

Manchester, May 20th. A. E. BARCLAY.

RHEUMATOID ARTHRITIS.

SIR,—In the first place I wish to make a correction in my last letter. In the thirteenth line from the end the word *soluble* should be *insoluble*. This is a distinction with a difference.

Opinions such as those expressed by Dr. J. Tertius Clarke, of Perak, in the Federated Malay States, make one despair of the medical profession ever becoming a scientific one; in fact, it is only a medical journal that would print such rubbish. What does he mean by "the absence of proof that a particular cause produces a particular effect is not a very strong proof that it may not do so"? To help in the solution of this riddle I suppose we may say that the absence of proof that *two* and *two* make *five* is no very strong proof that they may not do so. His talk about a theory and a theorem is not very relevant to his further remarks. A theorem should be true though the truth is not self-evident, but when I have finished with his conjectures—I will not call them a theory—I shall leave your readers to form their own opinion as to how far distant his conjectures are from a theorem, or even from anything bearing the semblance of truth.

"I have pointed out that there is no such thing as rheumatic fever in the Malay Peninsula, and Major Buchanan agrees with me that there is none in tropical India." What a peculiarly constructed sentence! The man in tropical India agrees with the man in the Malay Peninsula, not that there is no rheumatic fever in the Malay Peninsula, but that there is none in tropical India. Now, I suppose Dr. Clarke will agree with Major Buchanan that there is no rheumatic fever in the Malay Peninsula. As they are agreed about something which it appears they do not see, perhaps they will also agree, say, about some feature of the moon which they really can see from their respective spheres. Dr. Clarke again says, "I may now add that in eighteen years' experience in the tropics I have never seen a case of rheumatoid arthritis," and yet he thinks he knows all about it.

The experience of these gentlemen reminds me of the story of an English officer who, after expatiating on his prowess in shooting lions and tigers in India, took part in a conversation about missionaries, and boldly stated that there were no missionaries in India, as he had been there for a quarter of a century and had never seen one; a missionary who happened to be present said that from a similar paucity of reasoning he could assert that there were no lions and tigers in India, as he had been there for thirty years or more and had never seen one.

Regarding rheumatism, let us see what Dr. August Hirsch says:[1]

> In *India*, according to nearly all observers, rheumatism is not only more frequent than in many countries of the temperate zone, but in fact it holds, after the malarial fevers, one of the first places in the statistics of sickness. We have details of it from nearly all parts of the country; including Lower Bengal, Tirhoot, Chota Nagpore, the Himalayan slope, and other regions of the Bengal Presidency; the Upper Godavery in Central India; many parts of the Madras Presidency; Cochin, Goa, and other places on the Malabar Coast; Balgam, Poona, Aurungabad and Satara, Gujerât, Cutch, and Sind in the Bombay Presidency; Meerut, Futtegar, and other parts of the Upper Provinces.
>
> Similar accounts of rheumatism being endemic come from various parts of *Lower India* (Prome, Rangoon, Malacca, Singapore), from *Cochin China*, and the *Malay Archipelago* (particularly Samarang in Java, the coasts of Borneo and Sumatra, and the Riouw-Lingga group); also from a number of places on the coast of *China* (Chusan, Shanghai, Canton, Hong Kong, Ningpo, and Hangkow); from *Japan*; from many of the *Polynesian* groups (Hawaii, Tahiti and Eimeo, Fiji, the Marquesas, Samoa, and New Caledonia); and from *Tasmania* and *New Zealand*.
>
> In *Cochin China* rheumatic fever complicated with heart affection is often seen among the native Anamese. It occurs also in the *Malay Archipelago*, particularly among the men of the Dutch navy, and there have been cases in China among the British troops.
>
> From 1859 to 1883 the annual number of cases of rheumatism among the British troops at home and abroad per 1,000 men were: Nova Scotia and New Brunswick 26, Bermuda 29.1, Mauritius 30.4, Cyprus 32.2, New Zealand 34.2, Canada 35.8, Ceylon 36.2, West Indies (English regiments) 38.4, Cape and St. Helena 41.2, Great Britain and Ireland 43.1, Gibraltar 43.8, Madras Presidency 44.9, Bombay 46, Malta 46.3, Australia 49.5, Bengal 55.2, West Indies (black troops) 62.5, West Coast of Africa (black troops) 74.2.

So much for rheumatic affections in general, but regarding rheumatic fever he says:

> While tropical and subtropical countries have no absolute immunity from it, and some of them, indeed, such as Central Arabia, India, the Cape, the Abyssinian plateau, and Peru, are much subject to it; yet the maximum of frequency falls quite decidedly within the higher latitudes.

I may say that Dr. Hirsch was the first to look upon rheumatic fever as a specific infective disease.

Some years ago I had a letter from a surgeon-major in the Madras Presidency in which he stated that there was plenty of malaria there, but there were no mosquitos. When I mentioned the matter to Sir Ronald Ross he said there are some men who cannot see anything so small as a mosquito. Last year I saw an extremely bad case of rheumatoid arthritis in a lady aged 36, who was born in India and lived there the greater part of her life; she was in this country from the age of 10 to 17 for her education; contracted the disease in India at the age of 18 years, and only returned last year to see what could be done for her helpless condition.

Dr. Clarke's last paragraph is such an extraordinary piece of reasoning that I will not trouble to tear it to shreds, but just content myself with quoting the following sentence: "I do not mean that rheumatic fever is the cause of rheumatoid arthritis, but suggest that the cause of rheumatic fever is a necessary constant in the production of rheumatoid arthritis." His conjectures imply that he thinks or believes that rheumatic fever is due to an organism which he has never seen and about which he

[1] *Handbook of Geographical and Historical Pathology*, vol. iii, pp. 749, 750, 751, 757, 758, 759, and 760.

knows nothing; that because he has never seen rheumatic fever or rheumatoid arthritis in the Malay Peninsula, that therefore they do not exist there, and that because they don't exist there then they are causally connected; that the organism which gives rise to rheumatic fever may be, or rather is, "a necessary constant in the production of rheumatoid arthritis," even without any intermediary stage of rheumatic fever. In the same way he asserts that "nephritis may manifest itself as a sequel of scarlet fever or of quartan malarial fever without any history of the occurrence of one of these diseases previously." Surely a disease which was not present cannot have a sequel. Again, he supposes that the organism is "unable to exist extracorporeally at a mean temperature of 80° F.," and yet it is supposed to thrive in the human body at 105° F. or more, and to survive in Lapland at much below freezing point.

I have taken a pleasure in exposing the kind of stuff that is purveyed in a *soi-disant* scientific journal. Surely it is about time that you insisted on your contributors exhibiting some slight knowledge of the subject about which they write.—I am, etc.,

Liverpool, May 24th. JAMES BARR.

SIR,—Sir James Barr expresses his regret at seeing me "parting with the substance for the shadow" and goes on to add that it will be time enough for me to clench my view "that the disease is a toxic arthritis of bacterial origin" when I have discovered either the bacterium or its toxin. I can make no satisfactory reply to the first part of the above, as I really do not understand his reference to the substance and the shadow; with regard to his second point, I do not think Sir James Barr has quite grasped my position.

I pointed out that a close study of rheumatoid arthritis has led me to accept the bacterial origin of the disease as the view most consistent with available clinical and pathological data.

I did not enter into the consideration of facts personally observed in my investigation of many cases, which led me to accept this view. I contented myself with pointing out the strong support given to it in Sir James Barr's instructive address. I pointed out—and to this there has been, and can be, no denial—that the four fundamental principles of treatment so admirably laid down by Sir James Barr implied the probable existence of a bacterial origin of the disease. It might further be added that if the bacteriological basis for Sir James Barr's principles of successful treatment be removed, there is little or no substance left for any other theory of origin of the disease.

In the purely practical side of the question with regard to treatment, I am glad to find myself in complete agreement with him. In his letter published on May 24th, Sir James Barr rightly emphasizes the personal equation in treatment—in other words, the individual variations in the power of resistance to infection determined by conditions of the "soil," inherited or acquired. The bacterial element in any chronic infection is only a half, and sometimes a small half, of its etiology. It is to be hoped that Sir James Barr's stimulating address, which has served as the basis for an instructive correspondence, will lead to a wider recognition of the soundness of the principles of successful treatment of this disease, so admirably outlined by its author.—I am, etc.,

Edinburgh, May 24th. CHALMERS WATSON.

SIR,—In his letter in the JOURNAL of May 17th Sir James Barr says I jumbled joint diseases together. He has himself made a great point of the evidence of skiagrams in support of the decalcifying theory, but of my experience in this direction he writes, "I cannot attach much importance to his skiagrams, seeing that he does not clearly differentiate between the different affections of the joints." If Sir James will read my letter again he will see that I especially took his own definition and differentiation of the disease, and merely recorded my experience as to the use of skiagrams for diagnosing rheumatoid arthritis, which is evidently similar to that of Dr. C. Fred. Bailey, namely, that increased translucency is not peculiar to this disease.

I do not understand why Sir James Barr should take exception to my presuming that he cures his cases with lime salts. If he does not claim that lime is the all-important factor, by its absence through the "mild chronic acidosis," in causing the disease and by its presence as a curative agent, then it is not clear what his views, as expressed in his address, really are. He told us in that address that by using decalcifying agents we run the risk, from which he himself has escaped, of producing rheumatoid arthritis, and under the head of treatment he speaks of the importance of lime salts and of the various ways in which they may be administered. Sir James Barr has tried decalcifying agents upon himself, and has produced some of the symptoms of rheumatoid arthritis, but he has "succeeded in establishing a calcium equilibrium," and yet he objects to my suggesting that he cures his cases with lime salts.

Sir James also takes exception to my statement that according to his views rheumatoid arthritis begins in the larger joints, saying: "I have not laid down any hard-and-fast rules as to which joints are first affected." But in his address (BRITISH MEDICAL JOURNAL, p. 753) he says: "In my experience the large joints, especially the knees and shoulders and ankles, are first involved."

I entirely agree with Sir James Barr that the joint affections are only part of the disease, and his general rules and directions with regard to treatment, apart from the calcium theory, are full of sound common sense.

For the rest, as Dr. Chalmers Watson points out, the toxic and bacterial origin of the disease is far more present in Sir James Barr's mind than he seems aware.—I am, etc.,

Bath, May 19th. PRESTON KING, M.D.

SIR,—I have never at any time either attempted to differentiate the different forms of rheumatoid arthritis or any other kind of joint affection, or signified my acceptance of any existing classification, so that when Sir James Barr writes: "The whole series of chronic joint affections were then as inextricably mixed, as they are to-day by Dr. Craig," his remark can only be regarded as another example of his peculiar style of reasoning. Sir James Barr associates the thermopenetrating current with barley water. There is no doubt that any one who knew nothing of the action and methods of using the diathermic current would find barley water not only more efficacious but much safer. At a meeting of the Balneological and Climatological Section of the Royal Society of Medicine in April of this year, where the gentlemen present consisted of physicians to whom, if there be any truth in the statement that "an ounce of practice is worth a ton of theory," we must look for guidance in the treatment of this disease, one of the speakers, in advising copious water drinking for rheumatoid arthritis, stated that "the presence or absence of some lime is of no importance whatever," confirming Sir Robert Christison's wise statement made forty years ago. None of the experts present cavilled at the remark, although, of course, they all knew of the deleterious influence lime has on the body, especially on the circulatory system, when the amount given exceeds the requisite amount—10 grains daily for the adult.

In reply to Dr. Bailey's advice to give ionization a more prolonged trial, I may say I have seen cases that have undergone this treatment for many months, with about the same improvement as occurred in other cases, when the electrodes were moistened either with warm water or salt water, the same number of milliampères being used in each patient; in each of the three divisions the improvement was very marked.

What does Sir James Barr mean when he writes: "That the finely stencilled lines of absorption occurred at the edges of the bones where the blood supply comes from the periosteum"? I advise Sir James Barr to continue to diligently study Burns, and if he must prescribe lime, to abandon the somewhat dangerous calcium salts, and give his adherence to the products of the linden tree.—I am, etc.,

Llandudno, May 24th. JAMES CRAIG.

VACCINE TREATMENT OF ACUTE LOBAR PNEUMONIA.

SIR,—It appears to me that something very much more in detail than the records given by Dr. Lyons (BRITISH MEDICAL JOURNAL May 10th, 1913, page 992) is

required if it is sought to establish that improvement and recovery in his four cases of pneumonia not only followed but were the result of vaccine therapy.

In pneumonia, as in acute infections generally, everything depends on the virulence of the infection. Some cases are mildly toxic, and run a short course without at any time causing grave anxiety. Other cases show from the start serious symptoms, and signs of heart embarrassment are present in the earliest days of the attack. For the records of cases to be really convincing, some idea should be given of the degree of toxaemia present prior to the administration of the vaccine, particularly the condition of the heart and circulation. Especially valuable would be details of cases of asthenic pneumonia which had improved and recovered after the use of vaccines.

On May 5th I removed an undescended testicle from a boy aged 10 years. He promptly developed typical right apical pneumonia with a temperature which kept at about 103° until May 11th, when it came down to 100°. It went up again in the evening to 102°, but on May 12th it was normal. The boy's appearance did not cause any anxiety throughout; he had no vaccine, yet the course of his attack was very similar to, say, Dr. Lyons's third case (as regards the pneumonia).

Another case operated on the same day points to the possibility of fallacy even in cases where there is marked toxaemia. A gangrenous appendix was removed from a girl aged 8 years. Within twelve hours there was increasing abdominal distension, no passage of flatus, a pulse of 140, respirations 38, and a marked toxic appearance. I asked Dr. Eurich to prepare an autogenous vaccine. By the time the vaccine was ready the clinical picture had entirely changed—temperature 99°, pulse 112, bowels well moved, restlessness gone and some hours of normal sleep. The vaccine was consequently not given, but had it been possible to inject it whilst the patient was critically ill I should most assuredly have given it the credit for the remarkably rapid improvement in the symptoms.

I am a convinced believer in the efficacy of vaccine therapy and have seen not only symptoms abated, but lives—as I believe—saved by its use. But I think distinct disservice is done to the cause of vaccine therapy when cases are published in such an incomplete fashion that while the virtues of vaccines are asserted it is impossible to deduce them from the meagre details given.—I am, etc.,

Bradford, May 12th. JAMES PHILLIPS.

TUBERCULOSIS OFFICERS.

SIR,—While quite appreciating the good intentions of Drs. Graham and Lissant Cox as to the inclusion of tuberculosis officers in the Medical Officers of Health Superannuation Bill, I am sure I am voicing the opinion of many of us when I say that we do not quite fall in with the view that we are "a junior branch of the public health service" (Dr. Graham), that we "look forward to entering the main branch of the public health service," or that "the ranks of medical officers of health will be recruited from . . . tuberculosis officers" (Dr. Cox).

We are a new and distinct service created by the necessities of the Insurance Act, working in close harmony with medical officers of health, but whose training has been of necessity absolutely different, and whose experience, if to be of any value, has been gained not in the public health laboratory and in the working out of administrative and mathematical problems, not in studying the various Acts of Parliament so essential to the post of a medical officer of health, but in the wards and out-patient departments of chest hospitals, sanatoriums, and tuberculosis dispensaries. Our goal is not the position of a medical officer of health, who from the outset of his choice of a career works in quite a different channel, but rather that of promotion in the special service we have chosen, posts in sanatoriums, or in our later lives the career of consultants for diseases of the chest.

To class the tuberculosis officers as a junior branch of the public health service, and suggest that it is a stepping stone to the post of medical officer of health, is an error, and creates the idea of a hybrid service into which no man would put his best energies; nor is it in keeping with the spirit of the recommendations of the Local Government Board and Departmental Committee.—I am, etc.,

HORACE WILSON, M.D., B.S.Lond.

Merthyr Tydfil, May 10th.

TRADE UNIONISM AND MEDICINE.

SIR,—It has come to my knowledge that members of the profession in certain areas resent the suggestion contained in my letter published in the JOURNAL of May 10th, p. 1030, that we should aim at the abolition of the panel system in the future.

May I explain that to my mind the ideal panel list is the *Medical Register*, and I look forward to the substitution of this for the publication of lists of panel doctors in post offices? Then any doctor who chooses to take patients at 7s. per head per annum can do so and will be paid in full for them, while any patient who desires to go on paying his fees can also do so. Such people should be allowed to contract out of the capitation system of payment, and be allowed at the end of each year to receive 7s. against any medical bills for that year that they may be in a position to present. I suggest that under such a system the medical profession retains its freedom, the community retains a large portion of its freedom, and better work will be done than by bringing the bulk of the community under a capitation system. Capitation is a bad system in its essence, although undoubtedly necessary for the poorer classes of the community. It should be restricted to these classes.—I am, etc.,

London, W., May 27th. CHARLES BUTTAR.

FAT IN INFANTS' FOODS.

SIR,—Complaint having been made to me by Messrs. Allen and Hanbury that the proportion of fat in their infant foods given in the last edition of my book on *Food and Dietetics* is too low, I have had a fresh analysis of these preparations made, and find that the percentage of fat in their No. 1 and 2 foods should be 18.5 and 17.6 instead of 14.0 and 12.3 respectively as stated.

I am glad to have the opportunity of correcting this mistake and of pointing out that the proportion of fat in the No. 1 food *when mixed ready for use* is thus made practically the same as that in human milk. (See *Food and Dietetics*, third edition, page 470.)—I am, etc.,

London, W., May 22nd. ROBT. HUTCHISON.

Medico-Legal.

MEDICAL INCOMES DERIVED FROM INSURANCE FUNDS.

AT the Lambeth County Court on May 20th a question arose as to whether fees due to panel medical officers could be garnisheed—that is to say, whether they are liable to be ordered by a court to be paid, not to the medical man concerned but to some creditor of his in part or full payment of a debt proved before and ordered to be paid by a court of law. His Honour Judge Parry delivered judgement to the effect that a garnishee order must be issued, but that as the court was entitled to temper the wind to the shorn lamb, the order would only affect about one-third of the arrested sum; the balance would be paid to the defendant.

ALLEGED NEGLIGENCE AT AN ISOLATION HOSPITAL.

IN the King's Bench Division, on May 23rd, damages in respect of alleged negligence in the treatment of a patient at its isolation hospital were claimed from the Hendon Rural District Council. According to reports in the *Morning Post* and *Daily Telegraph*, the patient, a boy suffering from scarlet fever, was admitted as a paying patient, and remained for sixteen days. Towards the end of his stay he developed rheumatism in the arm, and on removal to a nursing home symptoms of heart trouble supervened. He was ill for several months, and was now regarded as unfit to enter the navy. His rheumatism and heart trouble were ascribed to the way in which baths had been administered at the hospital. They were given in a verandah; the verandah was enclosed, but it was alleged that it faced north-east, and that the bath was within a few feet of the entrance door of the hospital, and that at the opposite end there was a hole in the wall owing to building operations being in progress. It was also alleged that there was negligence in other respects, there being a deficiency of egg-cups and glasses in the wards.

For the defence it was stated that when the boy first had his bath he was carried to and from it wrapped in a blanket by a nurse, that the partition separating the verandah from the open air had been rendered airtight by a special arrangement, that the doors and windows had been properly closed and the temperature was kept at one approximating to that of the wards. Medical evidence was also given to the effect that there was nothing inconsistent with the possible results of scarlet fever in the boy's condition subsequent to leaving the isolation hospital.

Rheumatism and endocarditis, such as that from which the boy suffered, might result from scarlatinal infection and ensue despite the most skilful treatment.

After prolonged consideration the jury returned a verdict to the effect that the defendants had taken all reasonable care in providing a competent staff, and that though a verandah did not seem to the jury a desirable place for the administration of baths to fever patients, the plaintiff had not suffered from any negligence on the part of the defendants.

The Services.

ROYAL NAVY.

Royal Navy Medical Club.

The annual dinner of the Royal Navy Medical Club was held at Prince's Restaurant, Piccadilly, on May 23rd. The President on this occasion was Surgeon-General Arthur W. May, C.B., Medical Director-General, and the guests of the club included Sir Thomas Barlow, Bart., K.C.V.O., F.R.S., President, Royal College of Physicians; Sir Rickman J. Godlee, Bart., President, Royal College of Surgeons; Sir Archibald Geikie, K.C.B., F.R.S., President, Royal Society; and Surgeon Ed. L. Atkinson, who has recently returned from the Antarctic. Professor Harvey Littlejohn, Dean of the Faculty of Medicine, Edinburgh University, and Mr. W. Girling Bell, F.R.C.S., were also present as guests.

There was a large attendance of members and the meeting was in every way successful. The toast of "The King" was followed by that of "Our Guests," proposed by the President and responded to by Sir Thomas Barlow. Surgeon-General Sir James Porter, late Medical Director-General, then proposed the toast of "The President of the Dinner," and in his reply Surgeon-General May gave expression, on behalf of the Service, to the universal esteem held for Sir James Porter and the regret at his retirement.

Among the members of the club present were the following:

Surgeon-Generals.—J. J. Dennis, Charles James, A. J. J. Johnston, Christopher Pearson, K.H.P.

Deputy Surgeon-Generals.—R. Gavin Brown, W. M. Craig, F. J. Lilly, Lawrence Smith, M.V.O., G. Welch.

Inspector-Generals.—Henry Macdonnell, C.B., Belgrave Ninnis, C.V.O.

Deputy Inspector-Generals.—F. A. Jeans, J. McC. Martin, D.S.O.

Fleet Surgeons.—W. G. Axford, A. S. G. Bell, P. W. Bassett-Smith, C.B., F. W. A. Clayton, J. Chambers, W. R. Center, Sydney Croneen, E. C. Cridland, R. A. Fitch, A. Gaskell, A. F. Harper, Robert Hill, C.V.O., D. W. Hewitt, J. A. Keogh, Antony Kidd, M. H. Knapp, D. J. P. McNabb, W. L. Martin, P. M. May, R. C. Munday, C. J. Mansfield, M.V.O., J. A. Moon, J. Moore, E. S. Miller, C. L. Strickland, J. W. O. Underhill, A. E. Weightman, E. C. Ward, G. W. P. Waters.

Staff Surgeons.—F. Bolster, A. A. Forrester, H. Hunt, L. Lindop, J. McCutcheon, F. G. McKenna, C. A. G. Phipps, P. D. Ramsay, T. B. Shaw, E. G. Swan.

Surgeons.—A. F. Fleming, A. B. Marsh, J. H. B. Martin, N. C. Ridley, Campbell Ross, G. T. Verry.

Obituary.

We regret to record the death of Dr. Cecil Firmin Lillie after an illness which commenced in December in South Africa and terminated in London on April 17th within a week of his arrival. Dr. Lillie, who had just completed his 40th year, was a son of the late Rev. William Lillie, rector of Newchurch, Kent, and commenced his medical education at Cambridge, where he took a Second Class in the Natural Science Tripos, 1894. He joined St. Bartholomew's Hospital as a university student, and within the next few years became M.R.C.S., L.R.C.P., and in addition to completing his medical degree examinations at Cambridge received the diploma in public health of that University in 1897. Meantime he had filled a number of appointments at his hospital and its school, including those of house-surgeon, clinical assistant in the nose and throat department, and assistant demonstrator of pathology. He was one of those who went out to South Africa as a civil surgeon during the war; on his return he proceeded to M.A., and then began to divide his time between a winter practice at San Remo and summer work in England. In 1907, however, he went out to Grahamstown, where he remained working at the Albany General Hospital for some two years. He then went up country to take temporary charge of a practice at Salisbury, and on the return of its owner was invited to become a partner. Eventually, however, he decided to start a practice on his own account in Rhodesia, and on doing so met with the success to be expected of a man of his amiable personal qualities and wide experience in all branches of his profession. But at the end of last year misfortune overtook him; an attack of pneumonia was followed by pleurisy and pericarditis, and finally ended as already stated. Dr. Lillie, who was a member of the British Medical Association, contributed to our columns in 1902 a paper on the treatment of dysentery based on some of his experiences during the war, and in 1906 dealt with the incubation period of morbilli in the *Journal of St. Bartholomew's Hospital*. Dr. Lillie, who married in 1899 Caroline, youngest daughter of the late Rev. G. P. Percy-Ayscough, Vicar of Braybourne, Kent, and the Hon. Mrs. Percy-Ayscough, is survived by his wife and by three children, the eldest of whom is a chorister at Westminster Abbey.

Dr. Achilles Baruffaldi died at Milan on April 11th of pyaemia, contracted in operating on a puerperal woman. He had a high reputation as a gynaecologist, and was a prominent figure in the local world of sport. He was only 31 years of age.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

The following degrees have been conferred:

M.D.—W. E. Hume, G. H. Harper-Smith, G. L. Webb.
M.B.—T. N. Wood.

Scholarship.

The electors to the Michael Foster Research Studentship in Physiology have given notice that an appointment thereto will be made this year. The regulations concerning the scholarship will be found in the *University Reporter* for February 6th, 1912.

THE VICTORIA UNIVERSITY OF MANCHESTER.

Professor of Clinical Medicine.

Dr. Ernest S. Reynolds has been appointed Professor of Clinical Medicine. Dr. Reynolds, who received his education at Owens College, is physician to the Manchester Royal Infirmary; he was at one time pathologist at the West Riding Asylum, Wakefield, and in addition to many contributions to medical literature dealing especially with neurology, he is well known as the physician who drew attention to the epidemic occurrence of peripheral neuritis due to the presence of traces of arsenic in beer. He is a Member of the Council of the British Medical Association, and was Secretary of the Section of Psychological Medicine at the annual meeting of the Association in Manchester in 1902.

Convocation.

Parliamentary Representation.

At a special meeting of Convocation of the Manchester University on May 23rd, a resolution of a previous meeting came under review, which expressed the opinion that the right to parliamentary representation at present confined to certain universities should be extended to the universities now unrepresented. A motion was proposed to the effect that, having asked for parliamentary representation, the university principle of equal privilege for all its graduates should be maintained by the inclusion of women in the exercise of the proposed privilege. It appears, however, that the opponents of any parliamentary representation of any universities are fairly numerous, though most of them hold that all the universities should be treated alike. At the same time, under the charter of the Manchester University, women are eligible for every office in the university, and it was felt that it would be wrong if the first distinction were allowed to be set up in respect of parliamentary representation. Considerable discussion took place as to the most suitable form of words to meet the situation, and eventually the following resolution was adopted without opposition:

> If the principle of parliamentary representation is to be extended to this university, Convocation wishes to affirm its desire that the university principle of equal privilege for all its graduates should be maintained by the inclusion of women in the exercise of this proposed privilege.

Diploma in Ophthalmology.

For some time past a movement has been on foot to induce the Manchester University authorities to institute a special diploma in ophthalmology. This has met with considerable opposition, and a motion by Dr. Goodfellow, "That, in the opinion of Convocation, the institution of a diploma in ophthalmology is not to be desired," was carried by 16 votes to 2.

UNIVERSITY OF EDINBURGH.

THE following bursaries have been awarded in the faculty of medicine: The *Mackenzie* Bursaries in Anatomy to A. J. Caird, F. R. Cripps, W. Goldie, and E. F. Griffin; the senior *John Aitken Carlyle* in practical anatomy and physiology to J. L. Owen; the junior *John Aitken Bursary* in anatomy and chemistry to J. S. Bow: the *Crichton* Bursaries to D. H. Cameron, J. Learmont, and W. G. Robson; the *Grierson* Bursary to G. J. Alexander. The *Van Dunlop* Scholarship has been divided between A. Peffers and T. Skene.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE following candidates have been approved at the examination indicated:

FIRST FELLOWSHIP.—A. C. Ainsley, A. Anderson, C. W. Archer, E. B. Barnes, H. E. Batten, C. F. Beyers, A. L. Blunt, J. F. C. Braine, C. M. Burrell, P. F. Chapman, F. B. Chavasse, G. H. Chisnall, W. A. Curry, R. G. Dainty, H. McW. Daniel, J. Davidson, T. B. Davies, M. Donaldson, J. D. Driberg, H. H. Dummere, H. Evers, J. F. Fairley, E. Forrester-Paton, H. E. Gibson, D. W. Hume, J. G. Jones, T. H. Just, R. D. Lawrence, R. S. Lawson, G. L. Lillies, W. S. Lindsay, G. Lynden-Bell, D. A. McCombie, T. P. McMurray, J. T. Morrison, C. E. Petley, L. G. Phillips, K. N. Purkis, N. L. M. Reader, F. D. Saner, A. Seddon, H. N. Shufflebotham, R. F. Standage, T. C. Summers, R. E. T. Tatlow, D. C. Thomas, G. H. Wickens, C. M. Williams, C. R. Wright.

Medical News.

THE late Dr. Philip Frank, F.R.C.P., formerly of Cannes, left estate valued at £70,428.

A COURSE of five lectures and demonstrations on the psychoses and neuroses of children will be given by Dr. Francis Warner at the London Hospital Medical College, Mile End, E., on Thursdays at 2 p.m., beginning on June 5th.

UNDER the will of the late Mr. Abraham Haigh Crowther of Rochdale the infirmary in that town receives a bequest of £5,000 for the maintenance of five beds. Under the same will £3,000 is left to the Queen Victoria Memorial Nurses' Home in Rochdale for endowment purposes.

THE General Infirmary at Burton-on-Trent has received an intimation that the sons of the late Mr. Robert Ratcliff, a director of Messrs. Bass, Ratcliff, and Gretton, intend to present to the institution £20,000, a bequest of that amount having been included in a will which had not been signed when their father's death occurred.

THE Ingleby Lecture of the University of Birmingham will be delivered in the Medical Lecture Theatre by Professor J. T. J. Morrison, Surgeon to Queen's Hospital, at 4 p.m. on Thursday, June 5th. The subject of the lecture is spinal anaesthesia by tropacocaine, with a review of 1,000 cases.

THE *Annals of Tropical Medicine and Parasitology* (vol. vii, No. 1), issued by the Liverpool School of Tropical Medicine, contain several important papers on trypanosomiases and malaria, including a description of a mosquito-proof and storm-proof house for the tropics, by T. F. G. Mayer, and a paper on Sanitation in the Panama Canal Zone, Trinidad, and British Guiana, by David Thomson.

THE attention of Fellows of the Royal College of Surgeons of England who desire to offer themselves as candidates at the coming election of members of council on July 3rd should be turned to the notice received from the secretary of the college, announcing that nomination papers may be obtained from him on application, and must be received by him in return not later than next Friday, June 6th. Our usual analysis of the present council appeared in the JOURNAL of May 24th.

THE election of officers for the Obstetrical and Gynaecological Section of the Royal Society of Medicine resulted in the appointment of Dr. W. S. A. Griffith as president, of Drs. T. Watts Eden and C. Hubert Roberts as honorary secretaries, of Dr. C. Cuthbert Lockyer as representative on the library committee, and of Dr. John Phillips as representative on the editorial committee. Nine vice-presidents and eighteen other members of council were also appointed.

DR. W. HORTON DATE, who recently left Culmstock in Devonshire to devote himself entirely to public health work, was the recipient of a testimonial on May 19th from his former friends and patients. The gifts took the form of an oak sectional bookcase, a Chesterfield satin cabinet, a mirror, and a piece of silver, together with a book containing the names of the many subscribers, and a statement that the gifts were made as a token of sincere regard and gratitude. A corresponding presentation was also made to Mrs. Horton Date.

THE following have been elected officers of the Brighton and Sussex Medico-Chirurgical Society for the current year: *President*, Dr. W. Broadbent; *Vice-Presidents*, Drs. E. Hobhouse and F. Hinds; *Honorary Treasurer*, Mr. R. F. Jowers; *Honorary Librarian*, Dr. R. J. Ryle; *Honorary Literary Secretary*, Dr. S. B. Figgis; *Honorary Financial Secretary*, Mr. A. J. Martineau. A council consisting of nine members has also been elected. In this society the vice-presidents are chosen from among the ex-presidents, while those elected to the council must be members of at least three years' standing.

A SPECIAL post-graduate course is to commence at the North-East London Post-Graduate College on Monday, June 9th, and terminate on the 20th of the same month. The time has been very carefully mapped out, the first week being mainly devoted to practical instruction in the diagnosis and treatment of affections of the digestive system. The authorities, however, appear ready to arrange other classes in any subjects which may be desired. The fee for the whole fortnight is three guineas. The names of those wishing to attend should be sent to the dean at the hospital not later than June 6th.

THE annual report of the Royal Sanitary Institute recently issued shows satisfactory progress and development in the institute's work, both in England and other parts of the Empire. A new branch has been established in New Zealand, and the total number of members and associates on the roll is 4,257. An epitome of the three years' work since the institute was established in its new premises in Buckingham Palace Road is appended to the report; the attendance at the lectures of members, students, and the general public, indicates that the present situation of the institute is convenient. The institute has paid for the new buildings out of its accumulated fund, and the growth in the income has more than overtaken the increased expenses involved by the larger buildings.

ON May 10th the new building of the Henry Phipps Tuberculosis Institute at Philadelphia, which is under the direction of the University of Pennsylvania, was formally opened. On the occasion the honorary degree of LL.D. was conferred on Mr. Phipps, who has given £200,000 for the establishment of the institute and an endowment of £10,000 a year for its maintenance, and on Dr. Edward L. Trudeau, founder of the famous Adirondack Sanatorium. Addresses were delivered by Dr. Herman B. Biggs, of New York; Dr. W. H. Welch, of Johns Hopkins; Dr. Theobald Smith, of Harvard; Dr. A. Stenzal, of the University of Pennsylvania, and Dr. Weir Mitchell. The building is not primarily intended for a hospital, though it can accommodate twenty-four patients. Besides dispensary and hospital treatment of patients, the work of the staff will be sociological, educational, and preventive. The sociological work now in progress is the investigation of the relationship of tuberculosis to garment-making trades.

THE Surrey County Council has decided to provide medical treatment as a corollary of school medical inspection. The number of children whom it is believed will be inspected during the current year is 27,500, and it is estimated that 5,500 of these children will be found defective and to require treatment of some kind or other. It seems to be intended that this shall be furnished partly by whole-time medical officers and partly by private practitioners, and that there shall be 21 treatment centres, ultimately to be increased to 24. Operative treatment for diseases of the nose and throat is to be carried out at fixed fees by local medical practitioners, either at cottage hospitals, when available, or at school clinics, or failing either at the patient's home if the consent of the Board of Education can be obtained. Defective vision will usually be treated by the whole-time medical officers, but in certain districts local medical practitioners who specialize in this subject will be employed and will receive fixed fees. Subject to the consent of the Board of Education, *x*-ray treatment of ringworm will be undertaken by medical practitioners at a fixed fee, either at hospitals or in local surgeries possessing the necessary equipment. The Surrey Education Committee formulated this scheme after several conferences with representatives of Surrey medical practitioners, and submitted it in outline to the Board of Education in January. The latter promised to contribute not less than 50 per cent. of the net cost, but stipulated that the local authority must retain full control over all arrangements for treatment. The Board would not approve the use of local surgeries except in special classes of treatment, such as *x*-ray work, and would hesitate to make any grant if the scheme included the payment of subsidies to medical committees or voluntary agencies.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

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TELEPHONE (National):—
2631, Gerrard, EDITOR, BRITISH MEDICAL JOURNAL.
2630, Gerrard, BRITISH MEDICAL ASSOCIATION.
2634, Gerrard, MEDICAL SECRETARY.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

DERMA asks for advice in the treatment of superfluous hair on the chin in a lady who objects to electrolysis. He asks whether avulsion, shaving, depilatories, or bleaching with hydrogen peroxide would be the best.

McW. asks whether there is any evidence that the sense of smell is stronger in man than woman.

*** There is no evidence of any certainty that the sense of smell differs in acuity in the two sexes. Reference may be made to the following papers: Nichols and Bewley, *Nature*, 35, 74, 1887; Ottolenghi, *Riv. d. Psycol. Psichiatr. e. Neurol.*, 2, 1898; Toulouse et Vaschide, *C. R. Soc. Biologie*, 1899.

OXALURIA.

Z. asks for a reference to a discussion of the oxalic acid diathesis.

*** We are indebted to Dr. Saundby for the information that, in his opinion, the best statement on oxaluria is contained in von Noorden's *Metabolism and Practical Medicine*, translated and edited by Walker Hall, vol. iii, p. 1046. The following dietary has been based by Dr. Saundby on Klemperer's principles; some salt of magnesia—for example, the chloride—should be given daily:

Breakfast.—Weak coffee and cream, sugar if desired; any fish or bacon; dry toast; butter; no milk or eggs.

Lunch.—Meat or fish of any kind, except liver, sweetbreads, and kidneys; toast or rusk; potatoes, lentils, peas, asparagus, turnips, lettuce, cucumbers, mushrooms, onions, salads; stewed apples; boiled rice or hominy; Vichy, Contrexéville, Salutaris, or distilled water; a little whisky if desired.

Tea.—Weak coffee with cream, as at breakfast; toast, teacake, or cake; butter.

Dinner.—Soup; any fish; any meat, as at lunch; potatoes, rice, lentils, peas, turnips, onions, leeks, salads; mushrooms; stewed apples, pears, peaches, or apricots; no jellies or rich pastry; beverages as at lunch; apples, nuts; coffee.

LETTERS, NOTES, ETC.

HERPES AND VARICELLA.

DR. GEO. CHAS. WALKER (Southport) writes: On January 30th I was consulted by a nurse suffering from shingles of the left side of the body. In about fourteen days two of the children developed chicken-pox, and subsequently four others, going through all the phases characteristic of that complaint. I was at a loss to trace the source of infection in this instance.

SUPRARENAL ACTIVITY.

DR. J. BARCROFT ANDERSON (East London, S.A.) writes: On page 708 of the JOURNAL of April 5th I read: "The suprarenal is divided into two parts, the cortex and the medulla. . . . Now the changes that seem to indicate excessive activity of the suprarenals occur in the cortex." My experience with human *post-mortem* examinations is that in those cases where there has been a great call upon the suprarenal secretion before death the medulla is hyperaemic, enlarged, and in extreme cases broken down. In some cases, as in bubonic plague, one notices a hyperaemia of the cortex as well. Accordingly I presume that the remark in the JOURNAL is intended to apply to chronic activity.

MALINGERING.

SIR JOHN COLLIE (London, W.) writes: In a recent address on "Malingering, Valetudinarianism, and their Prevention," delivered before the Pathological Society of Manchester, and published in the BRITISH MEDICAL JOURNAL of April 19th, 1913, Dr. Byrom Bramwell referred to some misleading statements, which he said had been made at the last meeting of the British Medical Association in the course of discussion on medical training for the detection of malingering, with regard to the reaction of degeneration and the electrical testing generally of muscles. In the course of his remarks he said: "In a recently published book on malingering, equally erroneous statements as to the effect of electricity in cases of paralysis, and of the value of electrical testing in the diagnosis of malingering are made." I have been in communication with Dr. Byrom Bramwell, and I have his authority for stating that his criticisms did not refer to my book on malingering, but to an entirely different work.

SCARCITY OF SHIP SURGEONS.

LATE SHIP SURGEON writes: At present the many steamship companies are experiencing the greatest difficulty in obtaining surgeons. A large number of the companies have increased the pay from £10 to £12, £15, and £20 per month. Also, to obtain the best class of doctors, the companies have agreed to sanction the charging of medical fees for services to first and second class passengers. No fees can be charged to the crew nor to emigrants.

Many doctors complain bitterly of the action of those doctors who, going out to stay in Australia or New Zealand, sign on for a shilling a month, and of the doctors who, wishing for a cheap sail, sign on for a similar wage. Any sensible person must see that the action of these two classes of doctors tends seriously to lessen the social and professional standing of doctors generally. There is no reason why each doctor cannot obtain a minimum of £15 monthly.

Another thing which the ship doctor is now asked to do is to examine medically the crew before these sign the articles for the voyage. Many of the ship doctors are not paid one penny for this work; and, as the shore doctors are paid a fee of from £2 to £3, it is easily seen how the ship doctors are practically doing other doctors out of just fees.

My idea is that no doctor should accept any ship surgeoncy except through a medical agency, and that the deans of the various medical schools should so inform all the doctors, and that the British Medical Association similarly instruct them. In the better-class liners it is no exaggeration when one says that a month's salary is swallowed up in providing for the two suits of uniform now insisted upon.

THE TYPHOID CARRIER.

SURGEON-GENERAL VON SCHJERNING, Chief of the Sanitary Corps of the German Army, Professor Ehrlich, Professor Gaffky, Professor Kraus, Director of the Second Medical Clinic of the Charité of Berlin, Professor Uhlenhuth, Director of the Hygienic Institute of Strassburg, and Professor Hoffmann, of the Ministry of War, have issued a circular calling attention to the offer by an anonymous donor of a prize of Mk. 10,000 (£500) for the discovery of a remedy which shall free typhoid carriers from the bacilli which make them a danger to the people among whom they live. It must be shown that the intestinal excreta and the urine of the typhoid carrier have after treatment remained free for at least half a year from the typhoid bacillus. The researches must be described in detail and preparations must be sent at the competitor's expense to the committee for purposes of control. The period of control will extend to June 1st, 1915. If an entirely satisfactory solution of the problem is not reached, a portion of the prize may be awarded. Papers, which must be written in German, should reach the President of the Prize Committee, Professor von Schjerning, Wilhelmstrasse 86/87, Berlin, W., at latest by October 1st, 1914.

WARNINGS.

THE Oxford University Press desires to give notice to the profession that a man named John Williams is reported to have called upon doctors in North Wales, Lancashire and Cheshire districts, soliciting orders for the Oxford Medical Publications, and giving receipts in their name. The Oxford University Press can accept no responsibility for orders placed with him. Messrs. J. and A. Churchill also desire to state that the man calling himself John Williams is not in their employment, nor authorized to represent them.

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